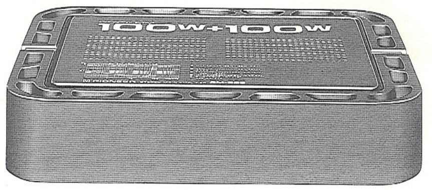
PIONEER

Service Manual



The photo shows the model GM-201.

ORDER NO.
CRT1061

POWER AMPLIFIER FOR CAR STEREO

GM-203 US

COMPONENT CAR STEREO STEREO MAIN AMPLIFIER

GM-201 EW

POWER AMPLIFIER FOR CAR STEREO

GM-123 US, CA, ES

COMPONENT CAR STEREO STEREO MAIN AMPLIFIER

GM-121 EW

SPECIFICATIONS

Power source ....DC14.4 V (10.8~15.6 V allowable)
Grounding system ....Negative type
Max. current consumption (GM-203, GM-201) ....20 A
Max. current consumption (GM-123, GM-121).........15 A
Dimensions (GM-203, GM-201) 230(W) × 60(H) × 270(D) mm
[9(W) × 2-3/8(H) × 10-5/8(D) in.]
Dimensions (GM-123, GM-121) 230(W) × 40(H) × 270(D) mm
[9(W) × 1-5/8(H) × 10-5/8(D) in.]
Weight (GM-203, GM201) 3.9 kg (8.6 lbs.) (Cords for wiring not included)
Weight (GM-123, GM121) 2.7 kg (5.9 lbs.) (Cords for wiring not included)
Continuous power output is 45 W per channel min. into 4 ohms, both channels driven 30 to 20,000 Hz with no more than 0.3% THD. (GM-203, GM-201)
Continuous power output is 28 W per channel min. into 4 ohms, both channels driven 30 to 20,000 Hz with no more than 0.3% THD. (GM-123, 121)
Maximam power output (GM-203, GM-201) .100 W + 100 W (EIAJ)
Maximam power output (GM-123, GM-121) 60 W + 60 W (EIAJ)
Load impedance ....4Ω (4~8Ω allowable)
Frequency response ....10~70,000 Hz ± (±3 dB)
Singnal-to-noise ratio (GM-203, GM-201) 97—107 dB (IHF—A network, at 1 W)
Signal-to-noise ratio (GM-123, GM-121) 95—104 dB (IHF—A network, at 1 W)
Distortion ....0.02% (at 20 W, 1 kHz)
Input level (GM-201, GM-121) .... 70—250 mV/20 kΩ
Input level (GM-203, GM-123) . .COMPO: 70—250 mV/20 kΩ
LINE IN: 200—700 mV/10 kΩ
BOOSTER: 3—10 V/1 kΩ

These specifications were determined and are presented in accordance with specification standards established by the AD Hoc Committee of Car Stereo Manufacturers.

Note:
Specifications and the design are subject to possible modification without notice due to improvements.

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1. PARTS LOCATION

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

The photo shows the model GM-201.

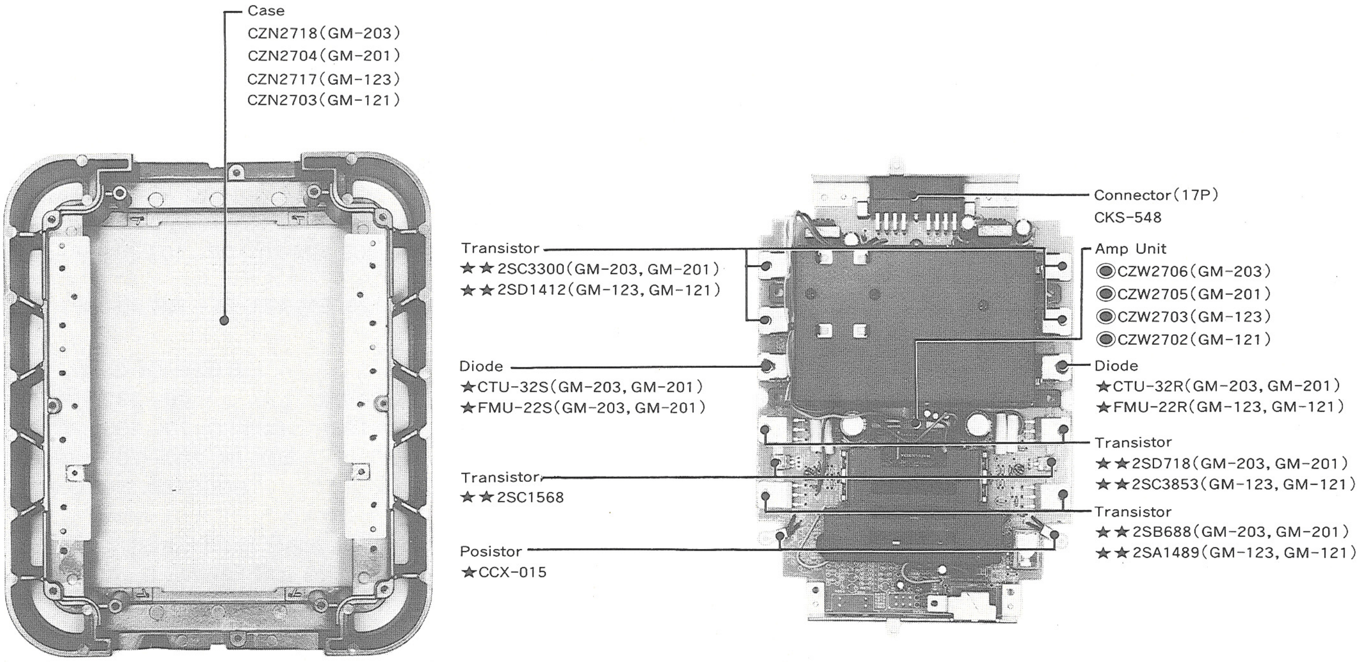

Case
CZN2718(GM-203)
CZN2704(GM-201)
CZN2717(GM-123)
CZN2703(GM-121)
Transistor
★★2SC3300(GM-203, GM-201)
★★2SD1412(GM-123, GM-121)
Diode
★CTU-32S(GM-203, GM-201)
★FMU-22S(GM-203, GM-201)
Transistor
★★2SC1568
Posistor
★CCX-015
Connector(17P)
CKS-548
Amp Unit
◉CZW2706(GM-203)
◉CZW2705(GM-201)
◉CZW2703(GM-123)
◉CZW2702(GM-121)
Diode
★CTU-32R(GM-203, GM-201)
★FMU-22R(GM-123, GM-121)
Transistor
★★2SD718(GM-203, GM-201)
★★2SC3853(GM-123, GM-121)
Transistor
★★2SB688(GM-203, GM-201)
★★2SA1489(GM-123, GM-121)

Fig. 1

2. CONNECTION

GM-201, GM121

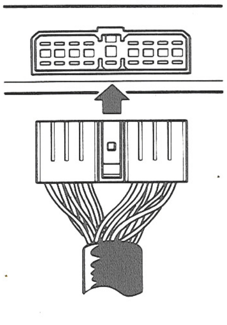
- Test-connect all components before securing them into place. Test-operate your entire car stereo system to ensure that there are no faulty wiring connections between this unit and the rest of your car stereo system.
- The speakers used in conjunction with this unit should be of a high-power capacity type capable of accepting up to a maximum input of*100W.Their impedance should be between 4 ohms and 8 ohms. Using Speakers with different impedance ratings or whose power handling capabilities fall short of the above figure can result in terminal damage to the speakers.
- For detailed information concerning connections between different components and this unit consult their respective instruction manuals and follow those recommendations precisely.
- When wiring connecting cords into place secure them with clampers and adhesive electrician's tape. Additionally, to prevent any damage to the insulative coating of the connecting cords, protect them with adhesive electrician's tape wherever they may come into contact with any sharp edges.
- Wire all connecting cords so that they stay well clear of high-temperature areas such as the heater exhaust port.
- To ensure that all components used in combination with this unit operate properly, be sure to wire the main power supply lead (red) and the memory power supply lead (orange) correctly to the respectively determined points. Failure to do so or errors in this process will result in total inoperation.

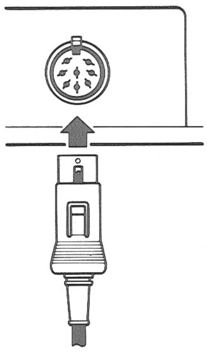
GM-121

- If distance between the deck and this unit is too far to make proper connections, please buy the optional exclusive extension cord for the Component Car Stereo.
- Do not drill a hole into the engine room and connect the memory power supply lead (orange) directly to the battery. Cracks can appear in the insulation of the cable possibly leading to a dangerous short circuit.

***GM-121: 60 W**

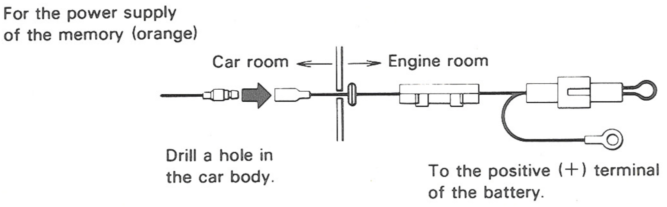
Connections of Cords (Supplied) for Wiring

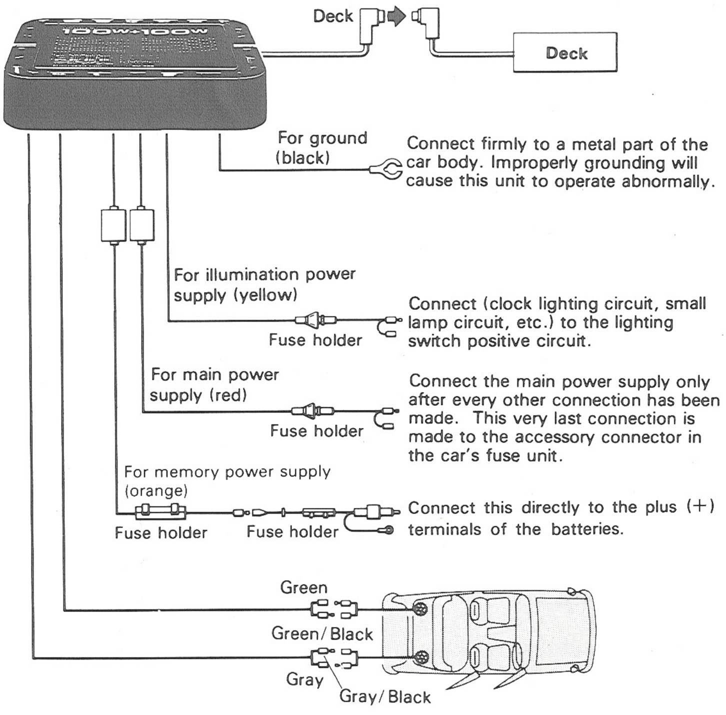




GM-201

- Connect the lead wire (orange) for the power supply of the memory directly to the positive (+) terminal of the battery, making sure to use the supplied power cord (orange).

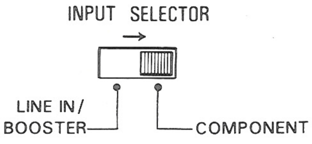

For the power supply of the memory (orange)
Car room
Engine room
Drill a hole in the car body.
To the positive (+) terminal of the battery.


100W+100W
Deck
Deck
For ground (black)
Connect firmly to a metal part of the car body. Improperly grounding will cause this unit to operate abnormally.
For illumination power supply (yellow)
Fuse holder
Connect (clock lighting circuit, small lamp circuit, etc.) to the lighting switch positive circuit.
For main power supply (red)
Fuse holder
Connect the main power supply only after every other connection has been made. This very last connection is made to the accessory connector in the car's fuse unit.
For memory power supply (orange)
Fuse holder
Fuse holder
Connect this directly to the plus (+) terminals of the batteries.
Green
Green/Black
Gray
Gray/Black

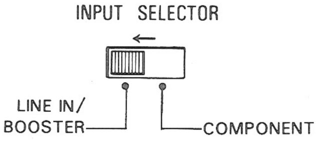
GM-203, GM-121

Input Selector

Be sure to set the input selector before wiring.

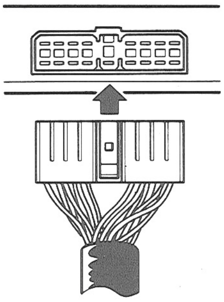

INPUT SELECTOR
→
LINE IN/
BOOSTER
COMPONENT

When connecting the unit with a component car stereo.


INPUT SELECTOR
←
LINE IN/
BOOSTER
COMPONENT

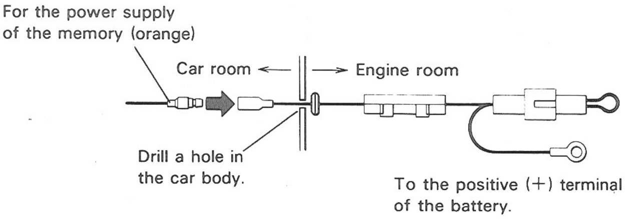
When connecting the unit with a car stereo with pin jacks or with a regular car stereo.

Connections of Cords (Supplied) for Wiring



(GM-203)

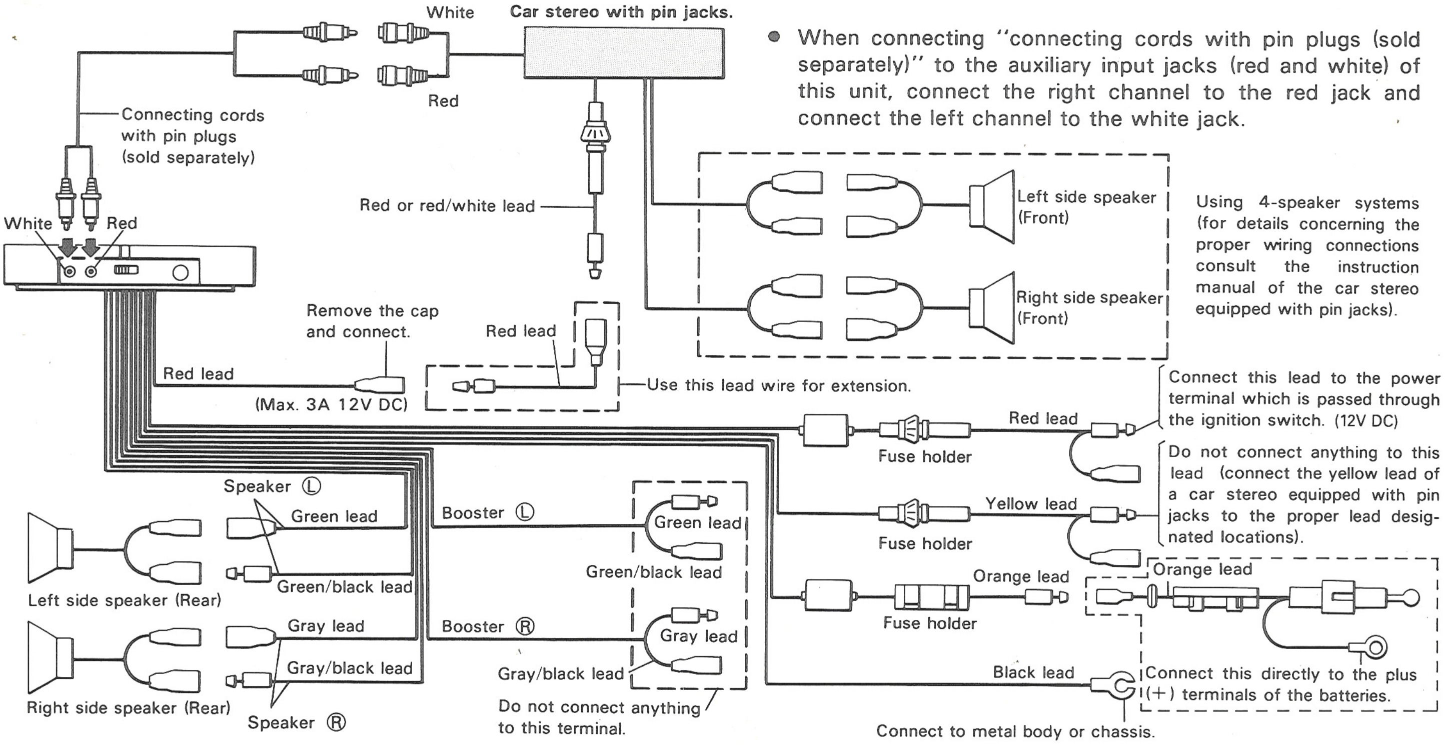
- Connect the lead wire (orange) for the power supply of the memory directly to the positive (+) terminal of the battery, making sure to use the supplied power cord (orange).


For the power supply of the memory (orange)
Car room
Engine room
Drill a hole in the car body.
To the positive (+) terminal of the battery.

When Combined with a Car Stereo with Pin Jacks

GM-203 only

- When connecting "connecting cords with pin plugs (sold separately)" to the auxiliary input jacks (red and white) of this unit, connect the right channel to the red jack and connect the left channel to the white jack.


White
Car stereo with pin jacks.
Red
Connecting cords with pin plugs (sold separately)
White
Red
Red or red/white lead
Left side speaker (Front)
Right side speaker (Front)
Remove the cap and connect.
Red lead
Red lead
(Max. 3A 12V DC)
Use this lead wire for extension.
Red lead
Fuse holder
Yellow lead
Fuse holder
Orange lead
Fuse holder
Orange lead
Black lead
Speaker Ⓛ
Green lead
Green/black lead
Left side speaker (Rear)
Gray lead
Gray/black lead
Right side speaker (Rear)
Speaker Ⓡ
Booster Ⓛ
Green lead
Green/black lead
Booster Ⓡ
Gray lead
Gray/black lead
Do not connect anything to this terminal.
Connect to metal body or chassis.

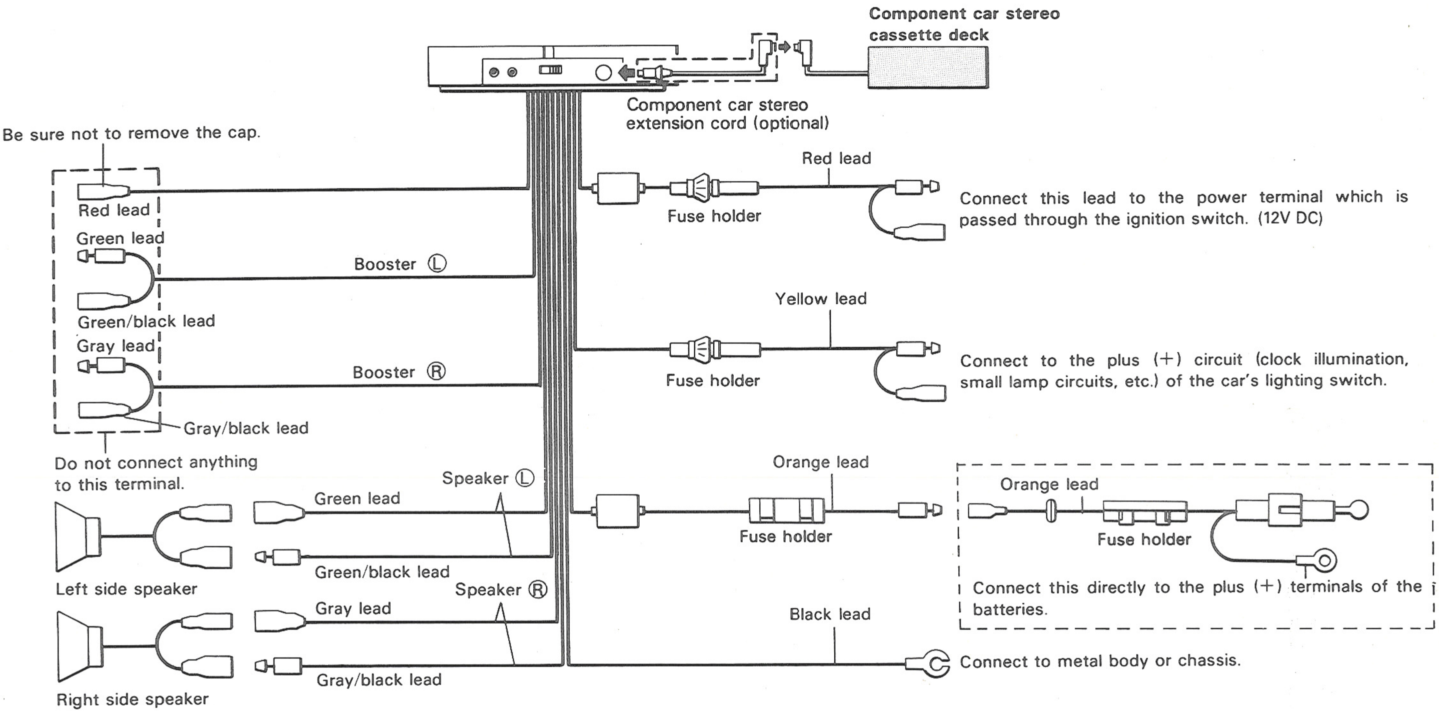
Using 4-speaker systems (for details concerning the proper wiring connections consult the instruction manual of the car stereo equipped with pin jacks).

Connect this lead to the power terminal which is passed through the ignition switch. (12V DC)

Do not connect anything to this lead (connect the yellow lead of a car stereo equipped with pin jacks to the proper lead designated locations).

Connect this directly to the plus (+) terminals of the batteries.

When Combined with a Component Car Stereo


Component car stereo cassette deck
Component car stereo extension cord (optional)
Red lead
Green lead
Booster Ⓛ
Green/black lead
Gray lead
Booster Ⓡ
Gray/black lead
Speaker Ⓛ
Green lead
Green/black lead
Left side speaker
Speaker Ⓡ
Gray lead
Gray/black lead
Right side speaker
Red lead
Fuse holder
Yellow lead
Fuse holder
Orange lead
Fuse holder
Orange lead
Fuse holder
Black lead

Be sure not to remove the cap.

Do not connect anything to this terminal.

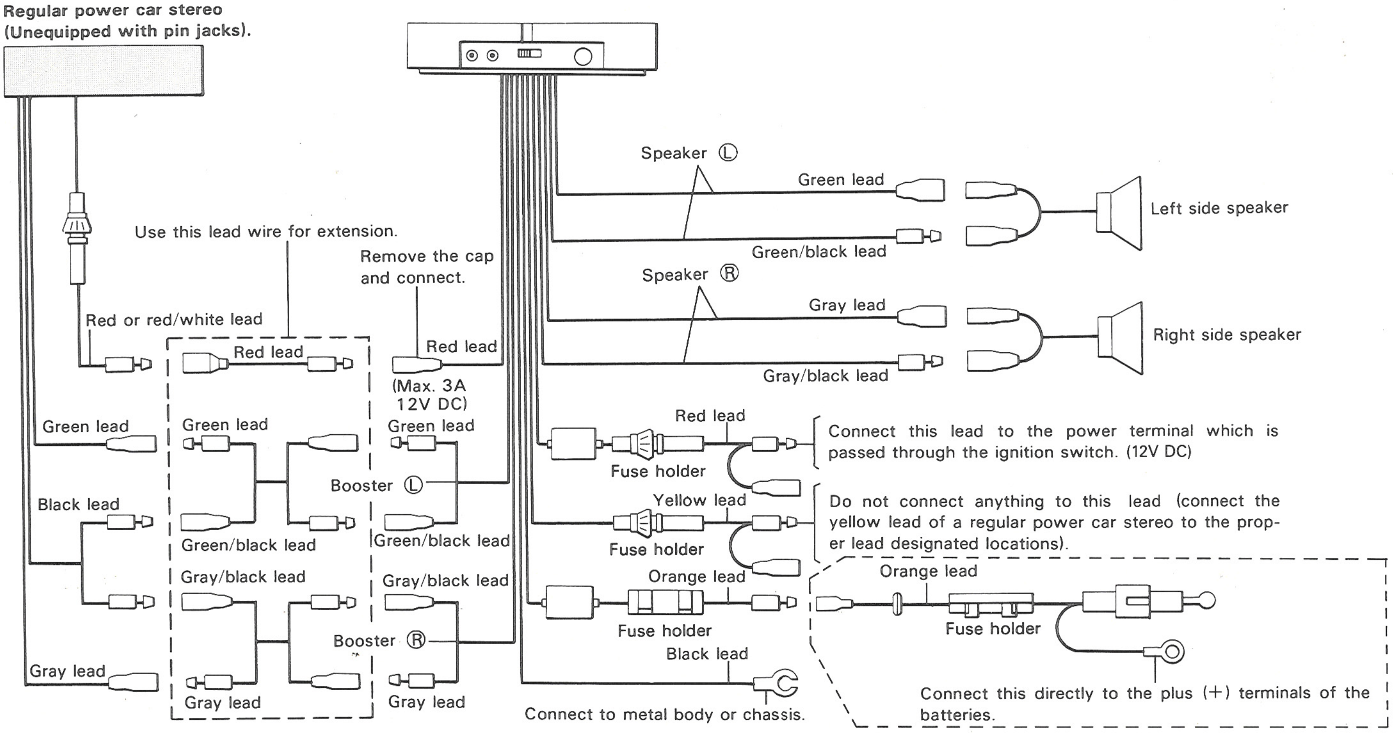
Connect this lead to the power terminal which is passed through the ignition switch. (12V DC)

Connect to the plus (+) circuit (clock illumination, small lamp circuits, etc.) of the car's lighting switch.

Connect this directly to the plus (+) terminals of the batteries.

Connect to metal body or chassis.

When Combined with a Regular Car Stereo


Regular power car stereo (Unequipped with pin jacks).
Red or red/white lead
Red lead
Green lead
Green lead
Green lead
Booster Ⓛ
Black lead
Green/black lead
Green/black lead
Gray/black lead
Gray/black lead
Booster Ⓡ
Gray lead
Gray lead
Gray lead
Red lead
(Max. 3A 12V DC)
Speaker Ⓛ
Green lead
Green/black lead
Left side speaker
Speaker Ⓡ
Gray lead
Gray/black lead
Right side speaker
Red lead
Fuse holder
Yellow lead
Fuse holder
Orange lead
Fuse holder
Black lead
Orange lead
Fuse holder

Use this lead wire for extension.

Remove the cap and connect.

Connect this lead to the power terminal which is passed through the ignition switch. (12V DC)

Do not connect anything to this lead (connect the yellow lead of a regular power car stereo to the proper lead designated locations).

Connect this directly to the plus (+) terminals of the batteries.

Connect to metal body or chassis.

3. DISASSEMBLY

• Remove the Case

1. Remove the six screws.

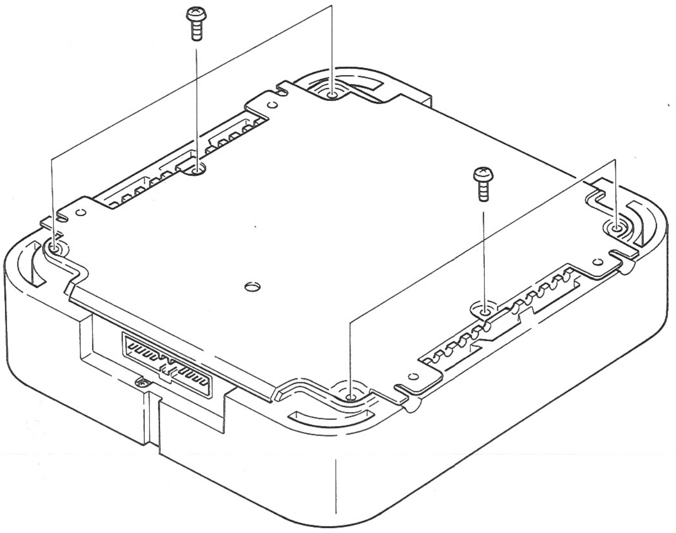


Fig. 2

• Remove the Amp Unit

1. Remove the six screws labeled "A", twelve screws labeled "B", four screws labeled "C" and two screws labeled "D".

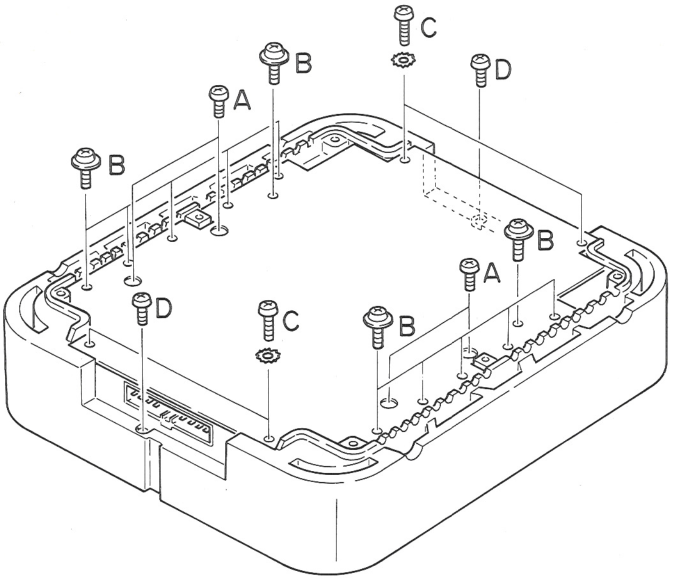


Fig. 3

4. CIRCUIT DESCRIPTION

• DC-DC Converter

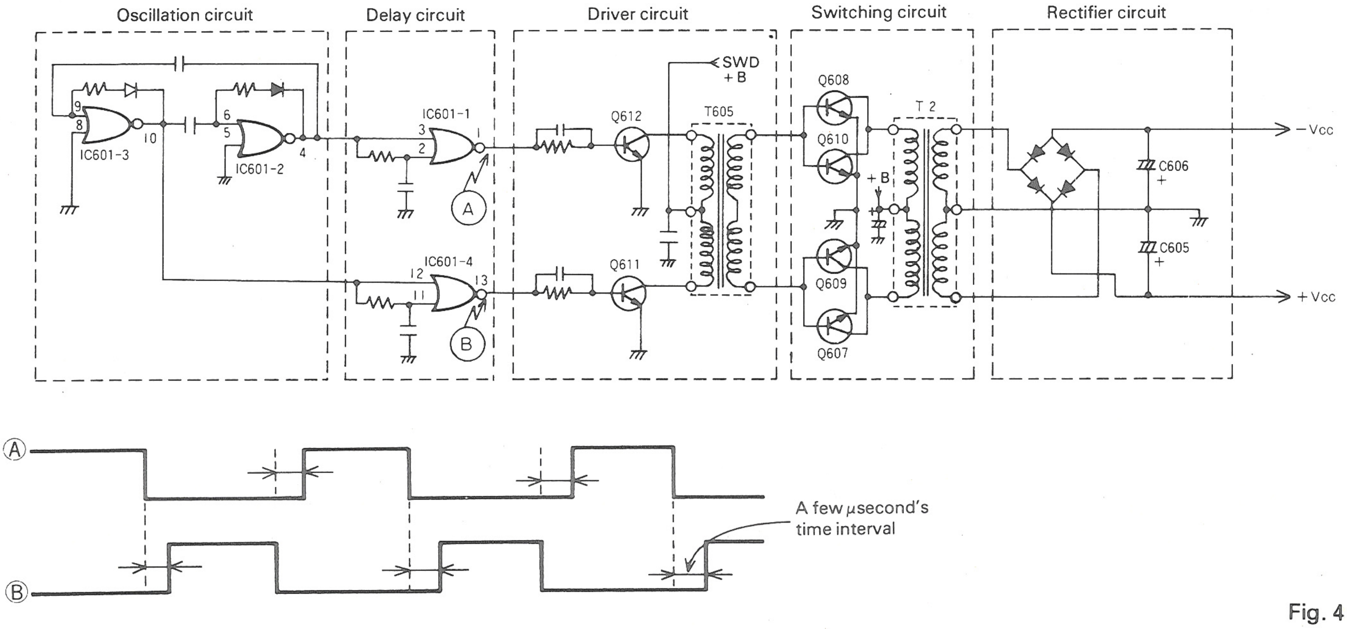

Oscillation circuit
Delay circuit
Driver circuit
Switching circuit
Rectifier circuit
IC601-3
IC601-2
IC601-1
IC601-4
Q612
Q611
T605
SWD
+B
Q608
Q610
Q609
Q607
T 2
+B
C606
C605
−Vcc
+Vcc
A
B
A few μsecond's time interval

Fig. 4

To achieve its high power capability, this unit employs a high efficiency DC-DC converter to boost DC 14.4V all the way up to ±*Vcc (Non loaded value)

To improve the transient characteristics and the switching waveforms of the power supply, a completly separate excitation configuration was used, with the oscillation frequency set to beyond the audible hearing band (About 29 kHz).

The power supply for the power stage is supplied through the bridge rectifier formed by the high frequency rectification silicon diodes and the large capacity C605 and C606 Capacitors. Additionally, to improve the power supply regulation, our own distinctive DC feedback circuit was incorporated to achieve a constant and stable output voltage.

The DC-DC converter circuit is composed of the oscillation circuit section, the delay circuit section, the driver circuit section, the switching circuit section, and the rectifier cercuit section. The oscillation circuit and the delay circuit use a TTL IC (HD 7402P). In order to insure that the driver transistors and the switching transistors do not turn on simultaneously, the delay circuit placds a time interval of a few useconds between them. (Fig. 4)

*GM-203, GM-201 . . . . .26.4 V
GM-123, GM-121 . . . . .20.7 V

● Protection Circuit

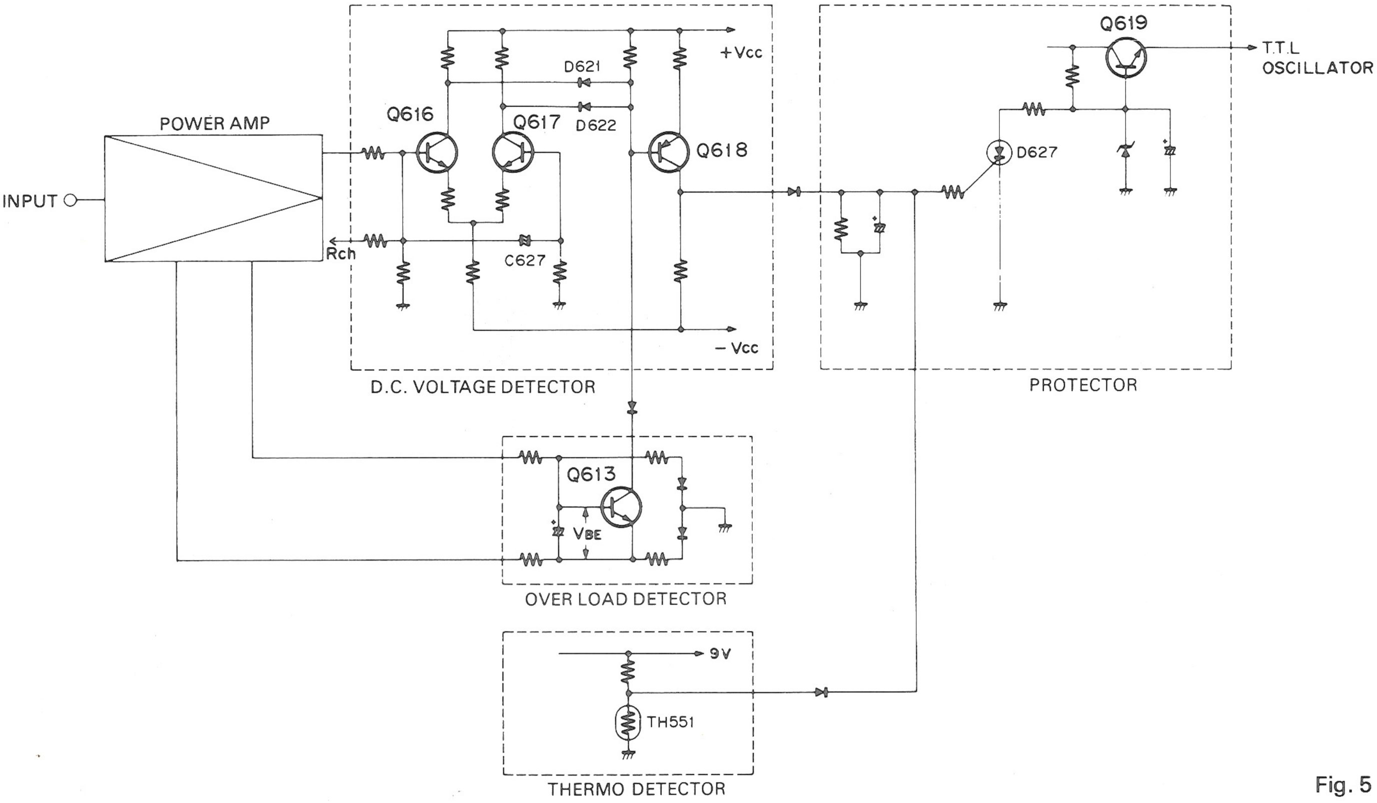
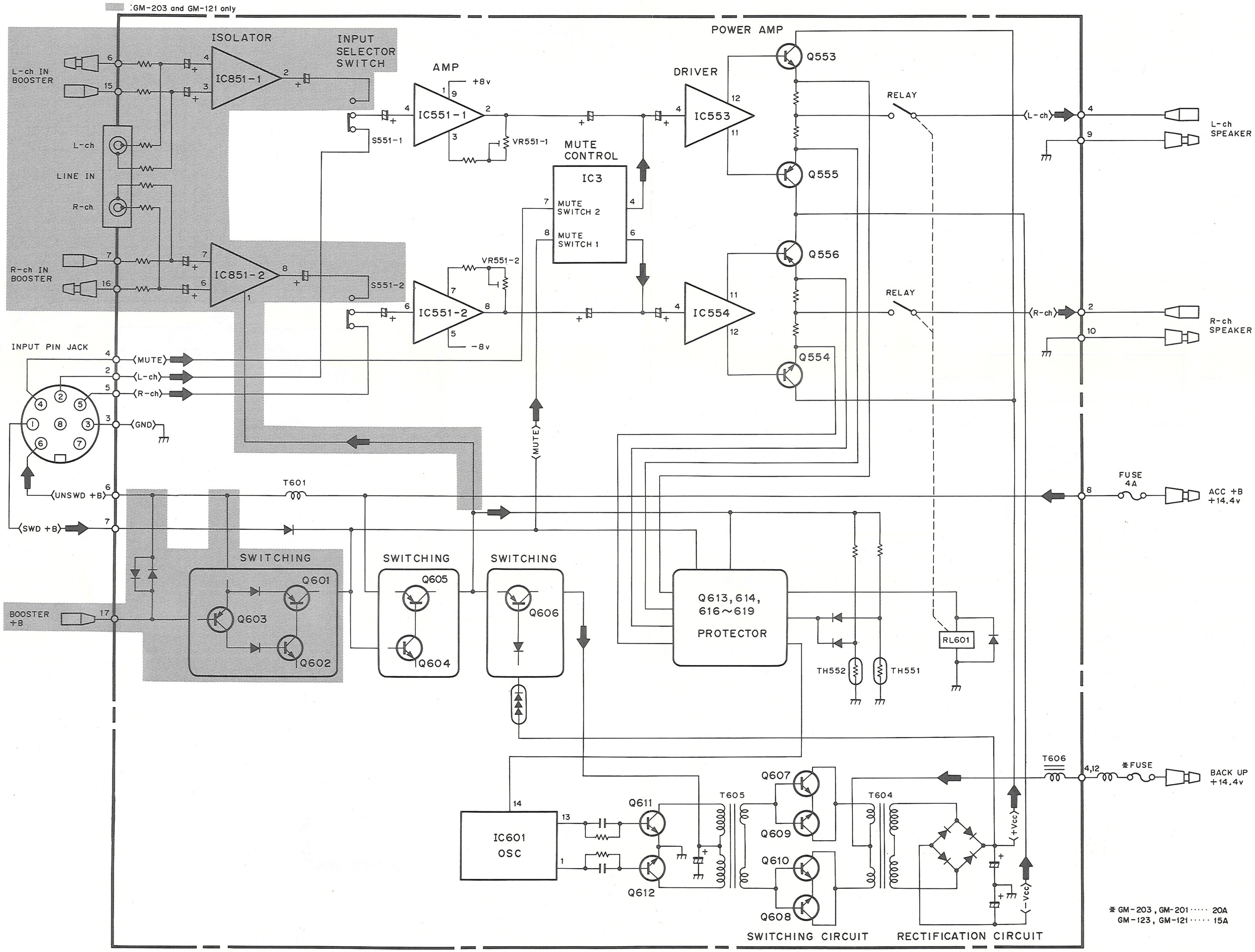


Fig. 5

The protection circuit instantly switches off the high-voltage circuits of the set to protect the final stage amplifier and speaker. The protection circuit consists of the following four parts.

- **Overload Detector Circuit**
  This cercuit detects output terminal shortcircuits, and unduly small load resistance. It forms a bridge circuit with the load serving as one of its sides, and generates a protection signal if the bridge circuit becomes unbalanced, or if VBE of Q613 voltage exceeds 0.6V.
- **DC Voltage Detector Circuit**
  This circuit detects the DC voltage generated at the amplifier output (center) point. The two bases are connected to each other with a capacitor, and one of the terminals is connected to the output center point. AC signals are erased at the same level, and DC voltages only are detected out of balance.
  If the DC balance of the power stage is lost due to some cause, a potential difference develops between the two bases of the differential amplifier so that the collector currents of Q616 and Q617 become unbalanced, Thereby energizing either of the two diodes (D621, D622). As a result, a protection signal is generated.
- **Thermo Detector Circuit**
  This circuit detects abnormal rise of the heat sink panels. The heat sink panel is fitted with a posistor (TH551), by which a protection signal is generated if the heat sink temperature reaches about 95°C.
- **Protector Circuit**
  The above-mentioned protection signals are applied to the thyristor (D627) gate by the diode OR circuit.
  This thyristor (D627) operates to switch off the power applied to the oscillator of the DC-DC converter and thus stops the power supply to the secondary winding of the transformer.

- **Block Diagram**



▨ :GM-203 and GM-121 only

※ GM-203, GM-201 ····· 20A
GM-123, GM-121 ····· 15A

L-ch IN BOOSTER
R-ch IN BOOSTER
LINE IN
L-ch
R-ch
ISOLATOR
IC851-1
IC851-2
INPUT SELECTOR SWITCH
S551-1
S551-2
AMP
+8v
-8v
IC551-1
IC551-2
VR551-1
VR551-2
MUTE CONTROL
IC3
MUTE SWITCH 2
MUTE SWITCH 1
DRIVER
IC553
IC554
POWER AMP
Q553
Q555
Q556
Q554
RELAY
(L-ch)
(R-ch)
L-ch SPEAKER
R-ch SPEAKER
INPUT PIN JACK
(MUTE)
(L-ch)
(R-ch)
(GND)
(MUTE)
(UNSWD +B)
(SWD +B)
T601
FUSE 4A
ACC +B +14.4v
BOOSTER +B
SWITCHING
Q601
Q603
Q602
SWITCHING
Q605
Q604
SWITCHING
Q606
Q613, 614, 616~619
PROTECTOR
TH552
TH551
RL601
T606
※FUSE
BACK UP +14.4v
IC601 OSC
Q611
Q612
T605
Q607
Q609
Q610
Q608
T604
(+Vcc)
(-Vcc)
SWITCHING CIRCUIT
RECTIFICATION CIRCUIT

Fig. 6

- **Muting Operation**

IC552: TA7362P

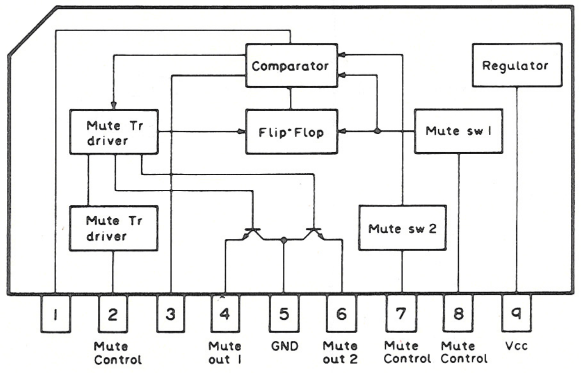
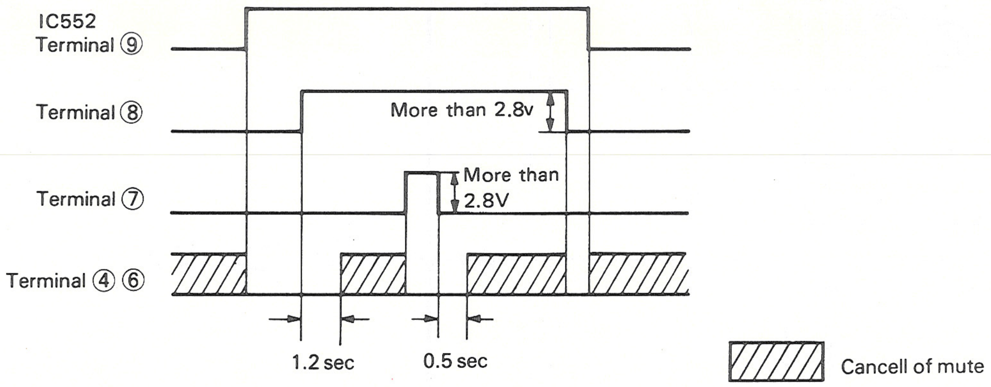

Comparator
Regulator
Mute Tr driver
Flip-Flop
Mute sw 1
Mute Tr driver
Mute sw 2
1
2
3
4
5
6
7
8
9
Mute Control
Mute out 1
GND
Mute out 2
Mute Control
Mute Control
Vcc

Fig. 7



(Timing of muting operation)

Fig. 8

- **Refer to figure 8 while reading the following description.**

1. When + B is supplied to the TO BATTERY terminal, a voltage is applied to terminal ⑨ of IC552, the muting transistor inside the IC is turned on and muting is activated.
2. When power is turned on to the external set, +B is supplied to pin ① of the connector. Muting is cancelled 1.2 seconds after the voltage at terminal ⑧ of IC552 reaches 2.8V or more.
3. When a muting output is generated in the external set, a voltage is applied from pin ④ of the connector to terminal ⑦ of IC552 and muting is activated when this voltage reaches 2.8V or more. Muting is cancelled 0.5 seconds after the voltage drops below 2.8V.
4. The muting restoration time is determined by the discharge time of the capacitor placed between terminals ① and ③ of IC552.

5 ADJUSTMENT

5.1 IDLE CURRENT ADJUSTMENT.

- **Connection Diagram**

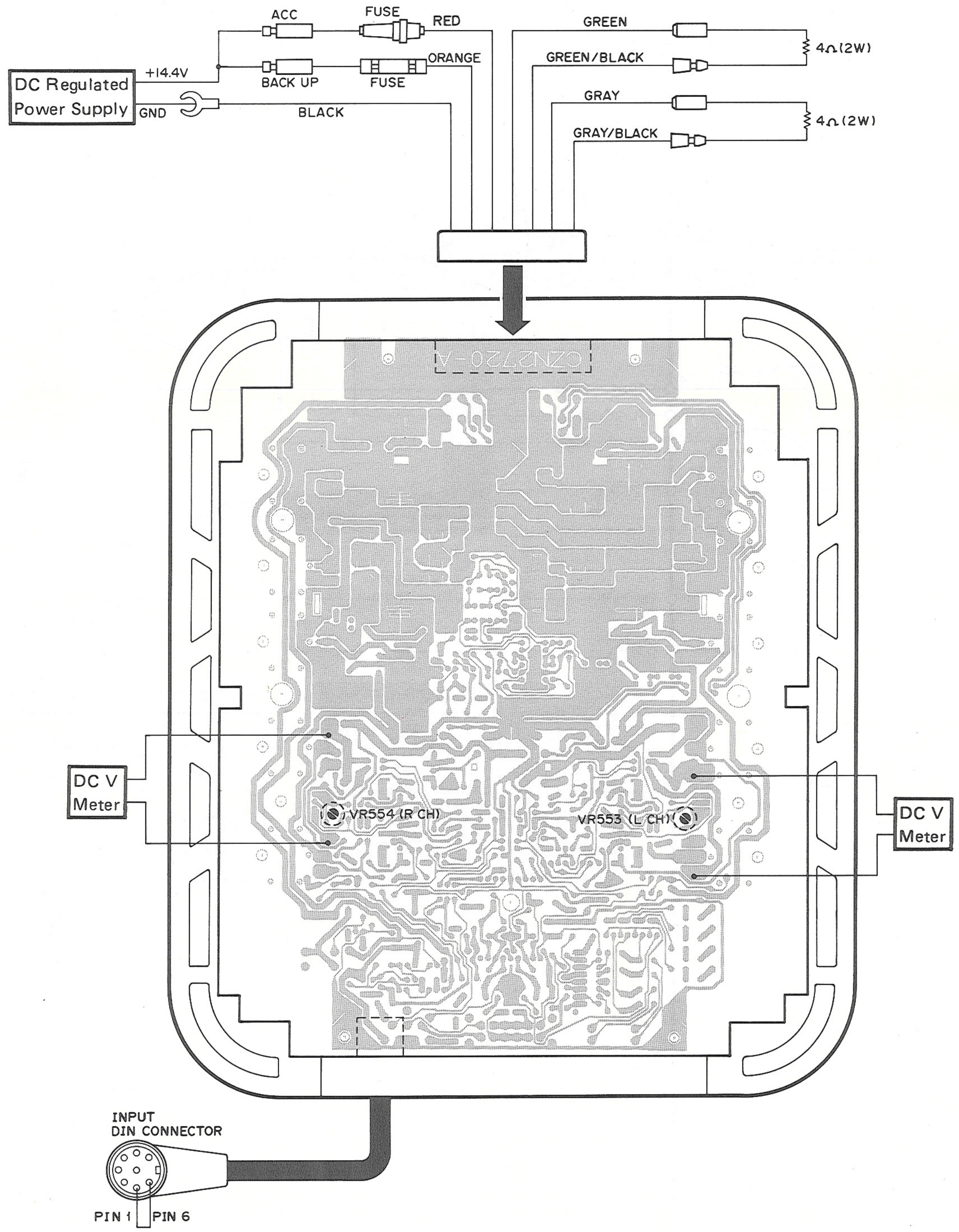

ACC
FUSE
RED
ORANGE
BACK UP
FUSE
+14.4V
DC Regulated Power Supply
GND
BLACK
GREEN
GREEN/BLACK
GRAY
GRAY/BLACK
4Ω(2W)
4Ω(2W)
DC V Meter
VR554 (R CH)
VR553 (L CH)
DC V Meter
INPUT DIN CONNECTOR
PIN 1
PIN 6

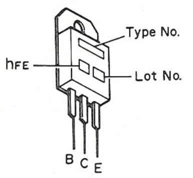
Fig. 9

- **To adjust**

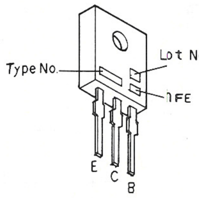
1. Adjust the VR 553 (L-ch) and VR554 (R-ch) until the DC volt meter reads 13 mV—14 mV.
2. Wait for two to three minutes, and verify that DC voltmeter reads 13 mV—14 mV.

• Ics and Transistors

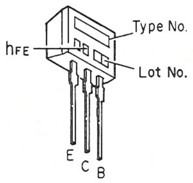
2SC3853
2SA1489
2SD718
2SB688


Type No.
hFE
Lot No.
B C E

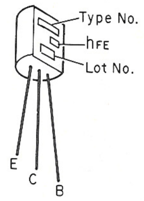
2SC1568


Type No.
Lot No.
hFE
E C B

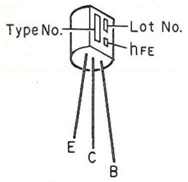
2SA1175
2SC2785


hFE
Type No.
Lot No.
E C B

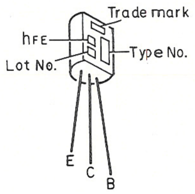
2SB647


Type No.
hFE
Lot No.
E C B

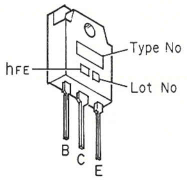
2SC2002
2SC1815


Type No.
Lot No.
hFE
E C B

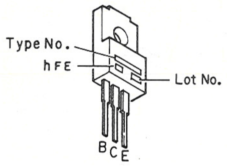
2SA683
2SC1383


Trade mark
hFE
Lot No.
Type No.
E C B

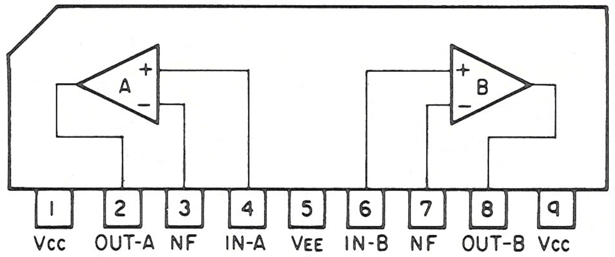
2SC3300


hFE
Type No
Lot No
B C E

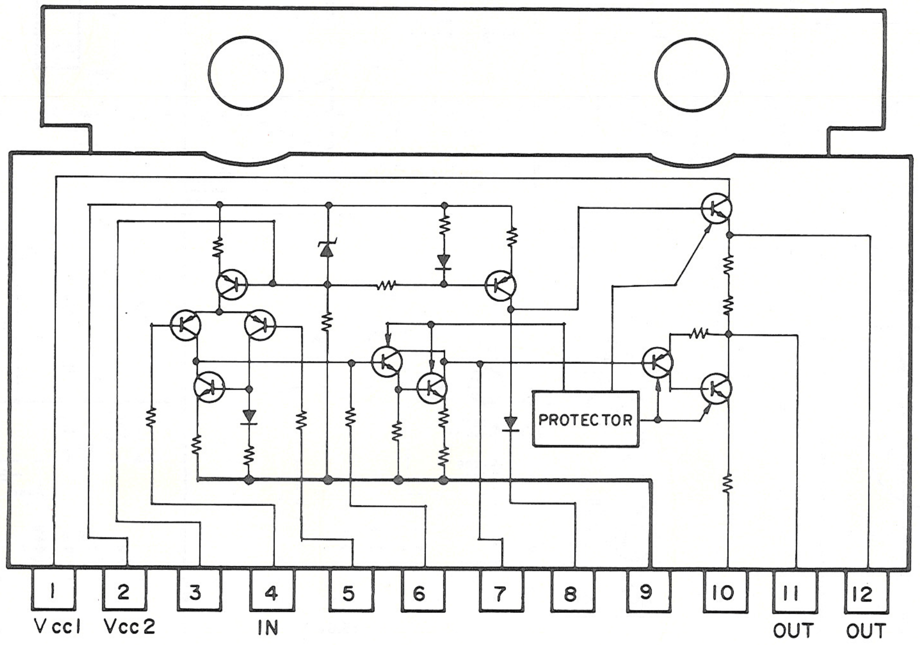
2SD1412


Type No.
hFE
Lot No.
B C E

TA75558S

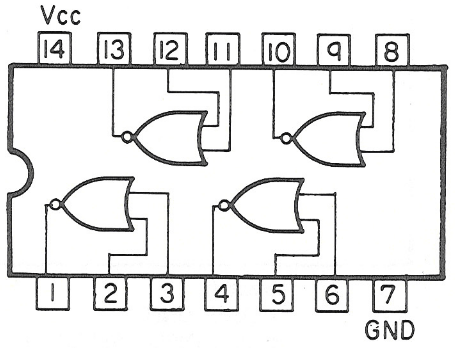

A
B
+
−
1 Vcc
2 OUT-A
3 NF
4 IN-A
5 VEE
6 IN-B
7 NF
8 OUT-B
9 Vcc

μPC1225H

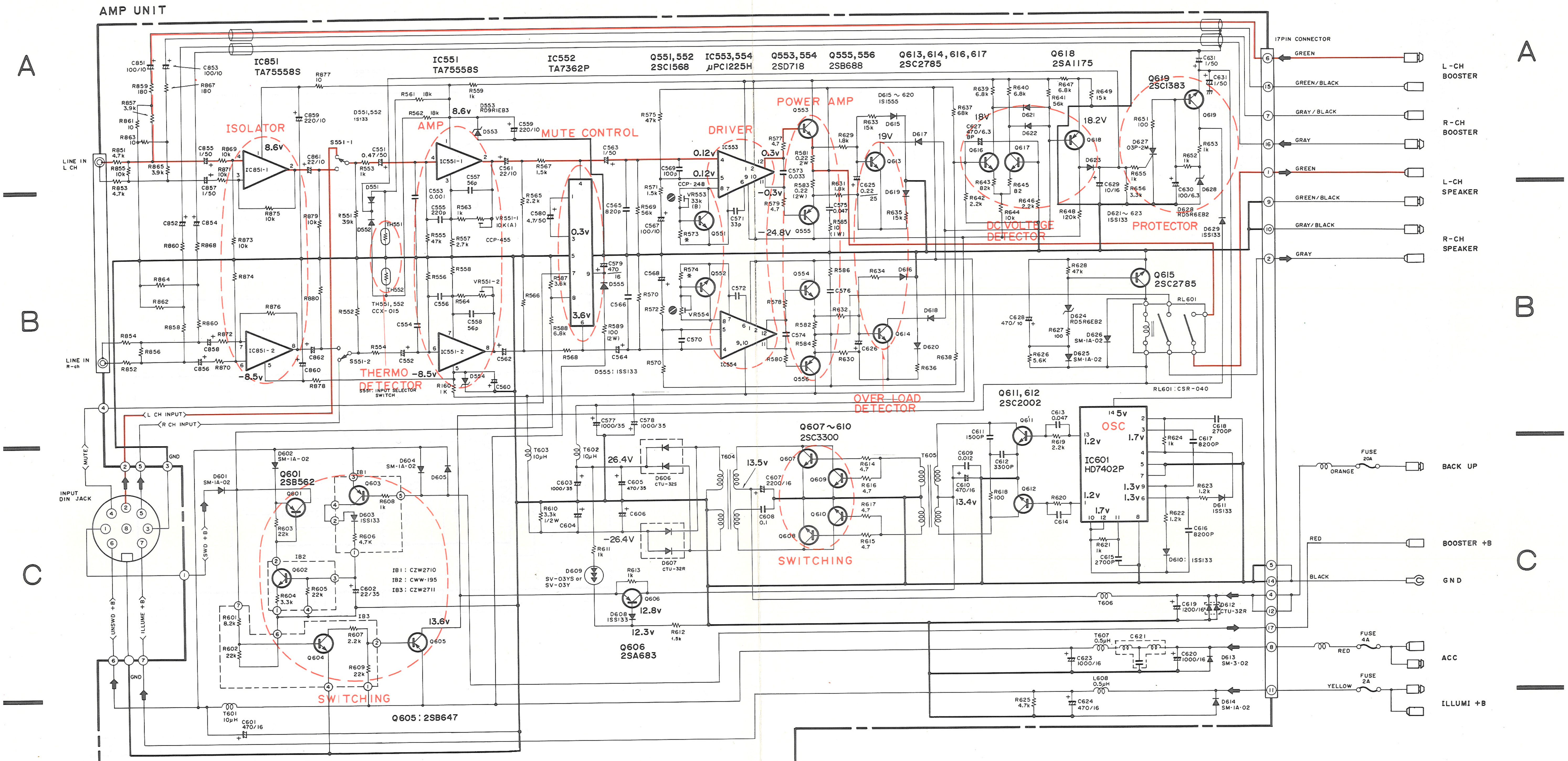

PROTECTOR
1 Vcc1
2 Vcc2
3
4 IN
5
6
7
8
9
10
11 OUT
12 OUT

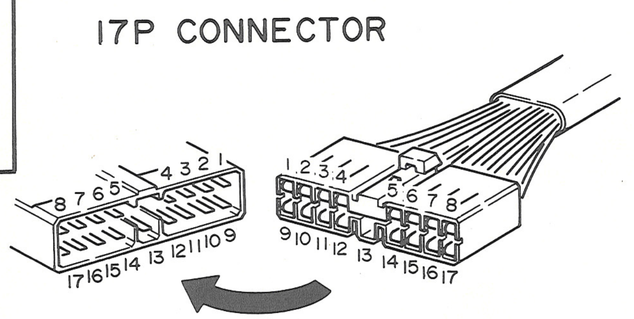
TA7362P (Shown in Fig. 7)

HD7402P


Vcc
14
13
12
11
10
9
8
1
2
3
4
5
6
7
GND

6. SCHEMATIC CIRCUIT DIAGRAM


AMP UNIT
IC851 TA75558S
IC551 TA75558S
IC552 TA7362P
Q551,552 2SC1568
IC553,554 μPC1225H
Q553,554 2SD718
Q555,556 2SB688
Q613,614,616,617 2SC2785
Q618 2SA1175
Q619 2SC1383
Q615 2SC2785
ISOLATOR
AMP
MUTE CONTROL
DRIVER
POWER AMP
DC VOLTAGE DETECTOR
PROTECTOR
THERMO DETECTOR
OVER-LOAD DETECTOR
SWITCHING
OSC
IC601 HD7402P
Q607～610 2SC3300
Q611,612 2SC2002
Q601 2SB562
Q605: 2SB647
Q606 2SA683
TH551, 552 CCX-015
S551: INPUT SELECTOR SWITCH
D555: 1SS133
RL601
RL601: CSR-040
IB1: CZW2710
IB2: CWW-195
IB3: CZW2711
LINE IN L CH
LINE IN R-ch
L CH INPUT
R CH INPUT
INPUT DIN JACK
MUTE
SWD +B
UNSWD +B
ILLUME +B
GND
17PIN CONNECTOR
GREEN
GREEN/BLACK
GRAY/BLACK
GRAY
L-CH BOOSTER
R-CH BOOSTER
L-CH SPEAKER
R-CH SPEAKER
BACK UP
ORANGE
FUSE 20A
BOOSTER +B
RED
BLACK
GND
FUSE 4A
ACC
FUSE 2A
YELLOW
ILLUMI +B
8.6V
-8.5V
0.3V
3.6V
0.12V
0.1V
-0.1V
-24.8V
18V
19V
18.2V
26.4V
-26.4V
13.5V
13.4V
13.6V
12.8V
12.3V
5V
1.2V
1.7V
1.3V


17P CONNECTOR
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16 17

* Be sure to use Q553 554, 555 and 556 in the same rank when servicing.
Q553–556 and R573 and 574 used mutually in the following assembly.

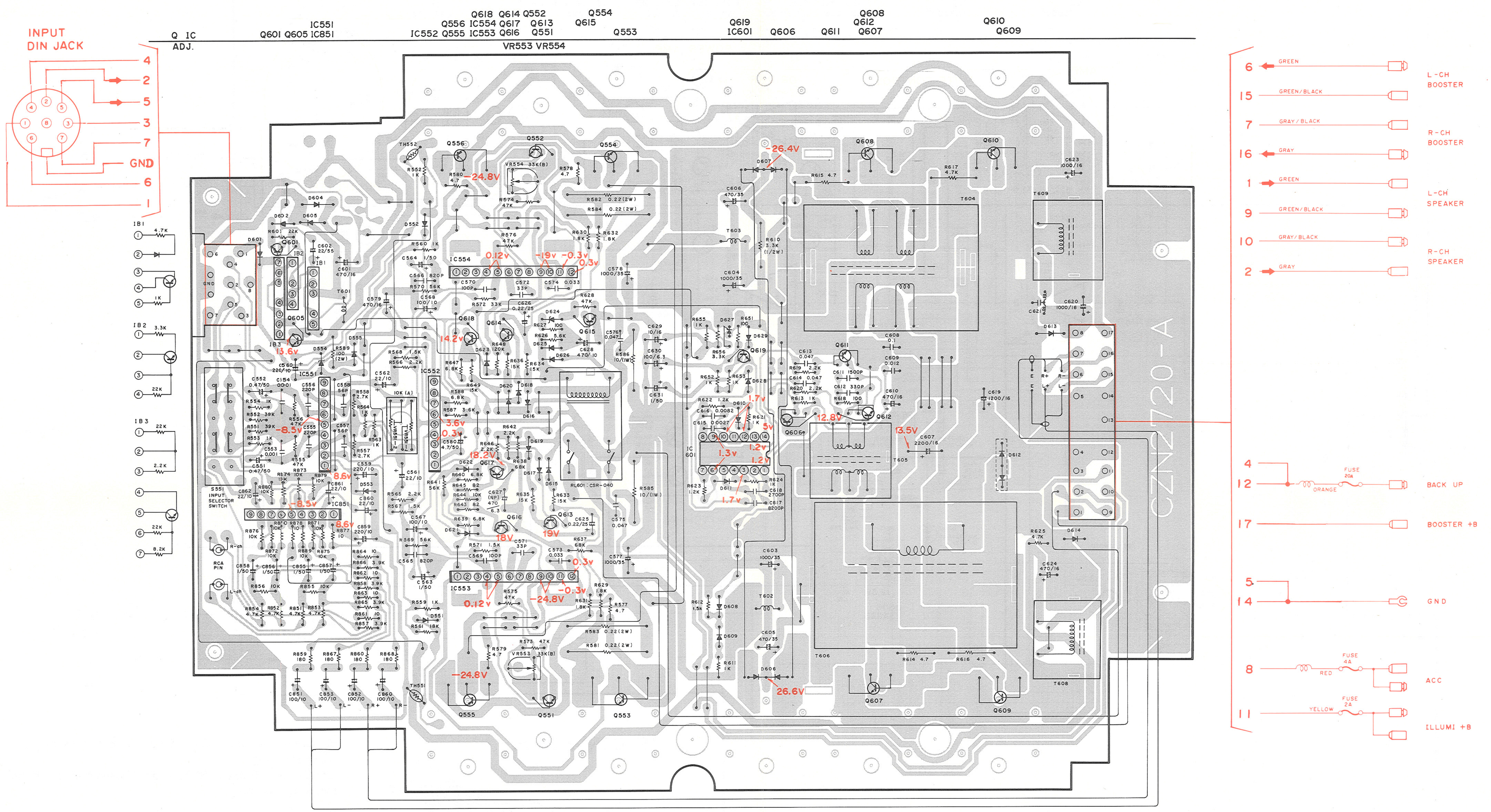
Rank / Resistor	S,T	Q,R
R573, 574	47 K	27 K

Fig. 10

Switch
- **AMP UNIT**

S551: INPUT SELECTOR SWITCH .....LINE IN, BOOSTER–COMPONENT
The underlined indicates the switch position.

7. CONNECTION DIAGRAM (GM-203)


INPUT DIN JACK
4
2
5
3
7
GND
6
1
Q IC ADJ.
Q601 Q605 IC551 IC851
IC552 Q556 Q555
Q618 IC554 IC553
Q614 Q617 Q616
Q552 Q613 Q551
VR553 VR554
Q554 Q615
Q553
Q619 IC601
Q606
Q611
Q608 Q612 Q607
Q610 Q609
IB1
IB2
IB3
S551 INPUT SELECTOR SWITCH
RCA PIN
R-ch
L-ch
-26.4V
-24.8V
0.12V
-19V
-0.3V
14.2V
13.6V
-8.5V
8.6V
3.6V
0.3V
18.2V
18V
19V
1.7V
1.3V
1.2V
5V
12.8V
13.5V
26.6V
GZN-720-A
6
GREEN
15
GREEN/BLACK
L-CH BOOSTER
7
GRAY/BLACK
16
GRAY
R-CH BOOSTER
1
GREEN
9
GREEN/BLACK
L-CH SPEAKER
10
GRAY/BLACK
2
GRAY
R-CH SPEAKER
4
12
ORANGE
FUSE 20A
BACK UP
17
BOOSTER +B
5
14
GND
8
RED
FUSE 4A
ACC
11
YELLOW
FUSE 2A
ILLUMI +B

IC551,851 : TA7558S
IC552 : TA7362P
IC553,554 : μPC1225H

IC601 : HD7402P

Q551,552 : 2SC1568
Q553,554 : 2SD718
Q555,556 : 2SB688

Q605 : 2SB647
Q606 : 2SA683
Q607 ~ Q610 : 2SC3300

Q611,612 : 2SC2002
Q613,614,616,617 : 2SC2785
Q615 : 2SC1815
Q618 : 2SA1175
Q619 : 2SC1383

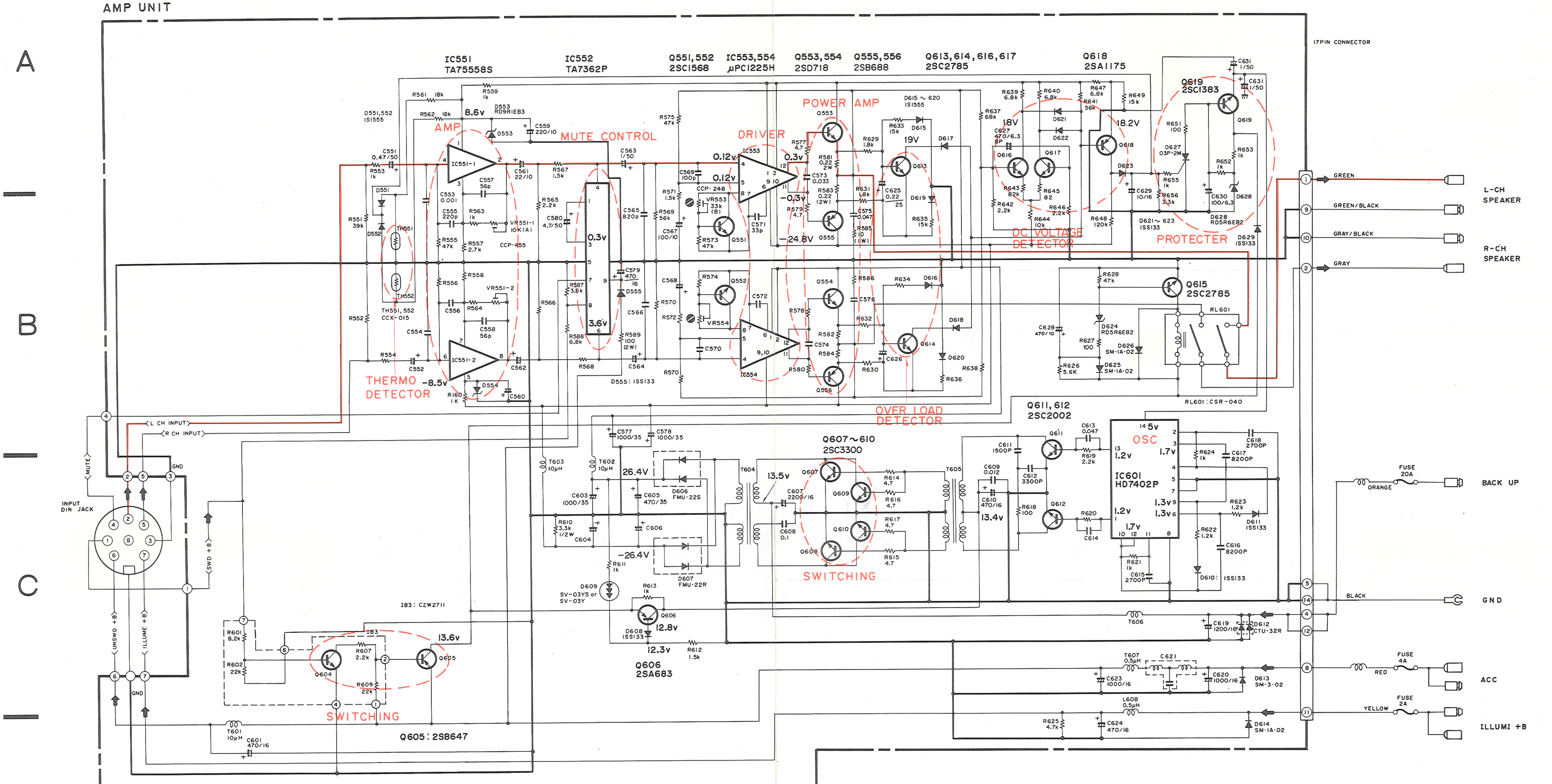
D551,552,555,605,608,610,611
615 ~ 623,629 : 1SS133 or 1SS176
D601,602,614,625,626 : SM-1A-02

D604,613 : SM-3-02
D606 : CTU-32S
D607 : CTU-32R
D609 : SV-03YS or SV-03Y
D612 : CTU-32R

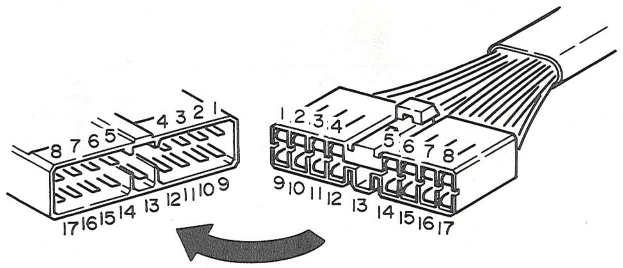
D627 : 03P-2M
D624,628 : RD5R6EB2
D553,554 : RD9R1EB3

Fig. 11

8. SCHEMATIC CIRCUIT DIAGRAM (GM-201)


AMP UNIT
IC551 TA75558S
IC552 TA7362P
Q551, 552 2SC1568
IC553, 554 μPC1225H
Q553, 554 2SD718
Q555, 556 2SB688
Q613, 614, 616, 617 2SC2785
Q618 2SA1175
Q619 2SC1383
17PIN CONNECTOR
AMP
MUTE CONTROL
DRIVER
POWER AMP
DC VOLTAGE DETECTOR
PROTECTER
THERMO DETECTOR
OVER LOAD DETECTOR
SWITCHING
OSC
IC601 HD7402P
Q607~610 2SC3300
Q611, 612 2SC2002
Q606 2SA683
Q605 : 2SB647
IB3 : CZW2711
D555 : 1SS133
RL601 : CSR-040
Q615 2SC2785
RL601
TH551, 552 CCX-015
D551, 552 1S1555
D553 RD9RIEB3
D615 ~ 620 1S1555
D621 ~ 623 1SS133
D606 FMU-22S
D607 FMU-22R
D609 SV-03YS or SV-03Y
D608 1SS133
D610 : 1SS133
D611 1SS133
D612 CTU-32R
D613 SM-3-02
D614 SM-1A-02
8.6v
0.12v
0.3v
3.6v
-0.3v
-24.8v
18V
19V
18.2V
-8.5v
26.4V
-26.4V
13.5v
13.4v
13.6v
12.8v
12.3v
5v
1.2v
1.7v
1.3v
L CH INPUT
R CH INPUT
GND
MUTE
SWD +B
UNSWD +B
ILLUME +B
INPUT DIN JACK
GREEN
GREEN/BLACK
GRAY/BLACK
GRAY
L-CH SPEAKER
R-CH SPEAKER
BACK UP
ORANGE
FUSE 20A
BLACK
GND
RED
FUSE 4A
ACC
YELLOW
FUSE 2A
ILLUMI +B
T601 T602 T603 T604 T605 T606 T607 L608
1 2 3 4 5 6
A B C D

17P CONNECTOR

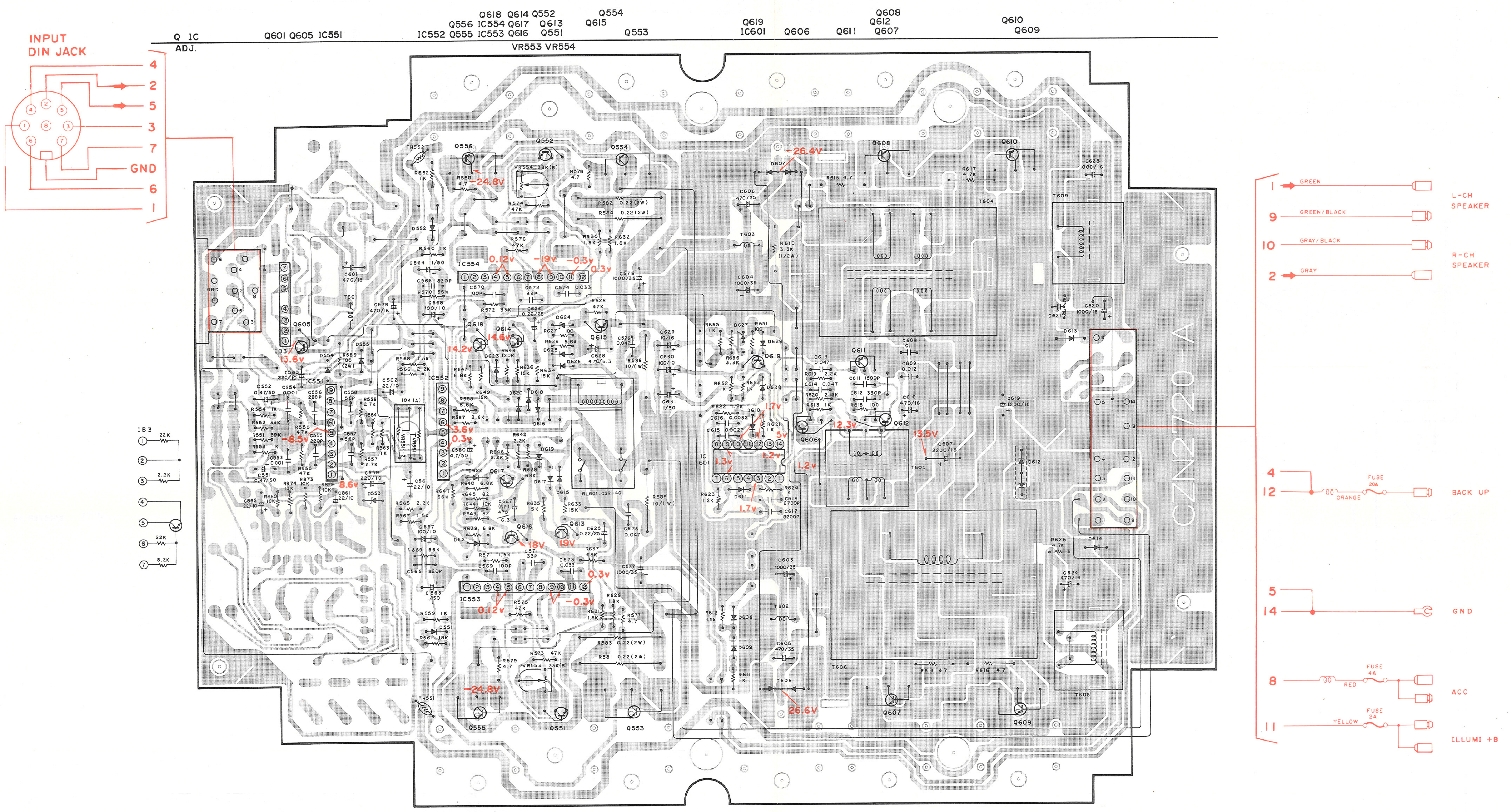

8 7 6 5
4 3 2 1
17 16 15 14 13 12 11 10 9
1 2 3 4
5 6 7 8
9 10 11 12 13 14 15 16 17

* Be sure to use Q553 554, 555 and 556 in the same rank when servicing.
Q553— 554, 556 and R573 and 574 used mutually in the following assembly.

Rank / Resistor	S,T	Q,R
R573, 574	47 K	27 K

Fig. 12

9. CONNECTION DIAGRAM (GM-201)


INPUT
DIN JACK
GND
Q IC
ADJ.
Q601 Q605 IC551
IC552 Q555 IC553 Q616 Q551
Q556 IC554 Q617 Q613
Q618 Q614 Q552
Q615
Q554
Q553
VR553 VR554
Q619
IC601
Q606
Q611
Q608
Q612
Q607
Q610
Q609
CZN2720-A
GREEN
GREEN/BLACK
GRAY/BLACK
GRAY
L-CH SPEAKER
R-CH SPEAKER
FUSE 20A
ORANGE
BACK UP
GND
FUSE 4A
RED
ACC
FUSE 2A
YELLOW
ILLUMI +B
-26.4V
-24.8V
0.12V
-19V
-0.3V
0.3V
14.6V
14.2V
13.6V
-8.5V
8.6V
3.6V
0.3V
18V
19V
1.7V
1.3V
5V
1.2V
12.3V
13.5V
-26.6V
-24.8V
0.12V
-0.3V
0.3V

IC551 : TA7558S
IC552 : TA7362P
IC553,554 : μPC1225H

IC601 : HD7402P

Q551,552 : 2SC1568
Q553,554 : 2SD718
Q555,556 : 2SB688

Q605 : 2SB647
Q606 : 2SA683
Q607 ~ Q610 : 2SC3300

Q611,612 : 2SC2002
Q613,614,616,617 : 2SC2785
Q615 : 2SC1815
Q618 : 2SA1175
Q619 : 2SC1383

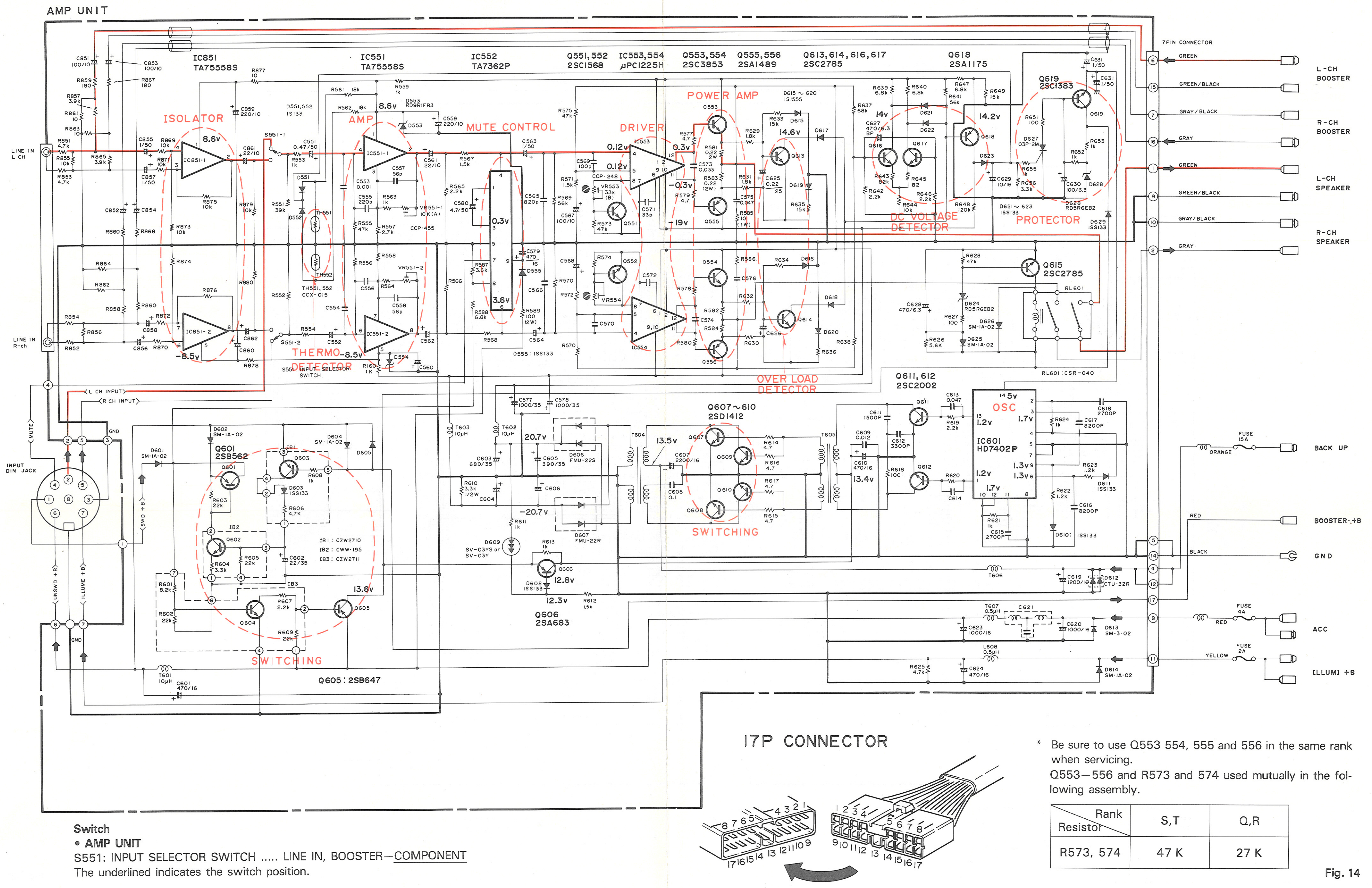
D551, 552, 555, 605, 608, 610, 611
615 ~ 623, 629 : ISS133 or ISS176
D614, 625, 626 : SM-1A-02

D604, 613 : SM-3-02
D606 : CTU-32S
D607 : CTU-32R
D609 : SV-03YS or SV-03Y
D612 : CTU-32R

D627 : 03P-2M
D624, 628 : RD5R6EB2
D553, 554 : RD9R1EB3

Fig. 13

10. SCHEMATIC CIRCUIT DIAGRAM (GM-123)


AMP UNIT
IC851 TA75558S
IC551 TA75558S
IC552 TA7362P
Q551,552 2SC1568
IC553,554 μPC1225H
Q553,554 2SC3853
Q555,556 2SA1489
Q613,614,616,617 2SC2785
Q618 2SA1175
Q619 2SC1383
ISOLATOR
AMP
MUTE CONTROL
DRIVER
POWER AMP
DC VOLTAGE DETECTOR
PROTECTOR
OVER LOAD DETECTOR
THERMO DETECTOR
S551 INPUT SELECTOR SWITCH
TH551,552 CCX-015
Q615 2SC2785
RL601
RL601 : CSR-040
Q611, 612 2SC2002
OSC
IC601 HD7402P
Q607~610 2SD1412
SWITCHING
Q601 2SB562
Q605 : 2SB647
Q606 2SA683
IB1 : CZW2710
IB2 : CWW-195
IB3 : CZW2711
D555 : 1SS133
D551,552 1S133
D615 ~ 620 1S1555
D621 ~ 623 1SS133
D610 : 1SS133
8.6v
-8.5v
0.12v
0.3v
-0.3v
-19v
3.6v
14v
14.2v
14.6v
20.7v
-20.7v
13.5v
13.4v
13.6v
12.8v
12.3v
5v
1.2v
1.7v
1.3v
LINE IN L CH
LINE IN R-ch
L CH INPUT
R CH INPUT
INPUT DIN JACK
MUTE
SWD +B
UNSWD +B
ILLUME +B
GND
17PIN CONNECTOR
GREEN
GREEN/BLACK
GRAY/BLACK
GRAY
L-CH BOOSTER
R-CH BOOSTER
L-CH SPEAKER
R-CH SPEAKER
FUSE 15A
ORANGE
BACK UP
RED
BOOSTER +B
BLACK
GND
FUSE 4A
ACC
FUSE 2A
YELLOW
ILLUMI +B
17P CONNECTOR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

* Be sure to use Q553 554, 555 and 556 in the same rank when servicing.
Q553—556 and R573 and 574 used mutually in the following assembly.

Resistor \ Rank	S,T	Q,R
R573, 574	47 K	27 K

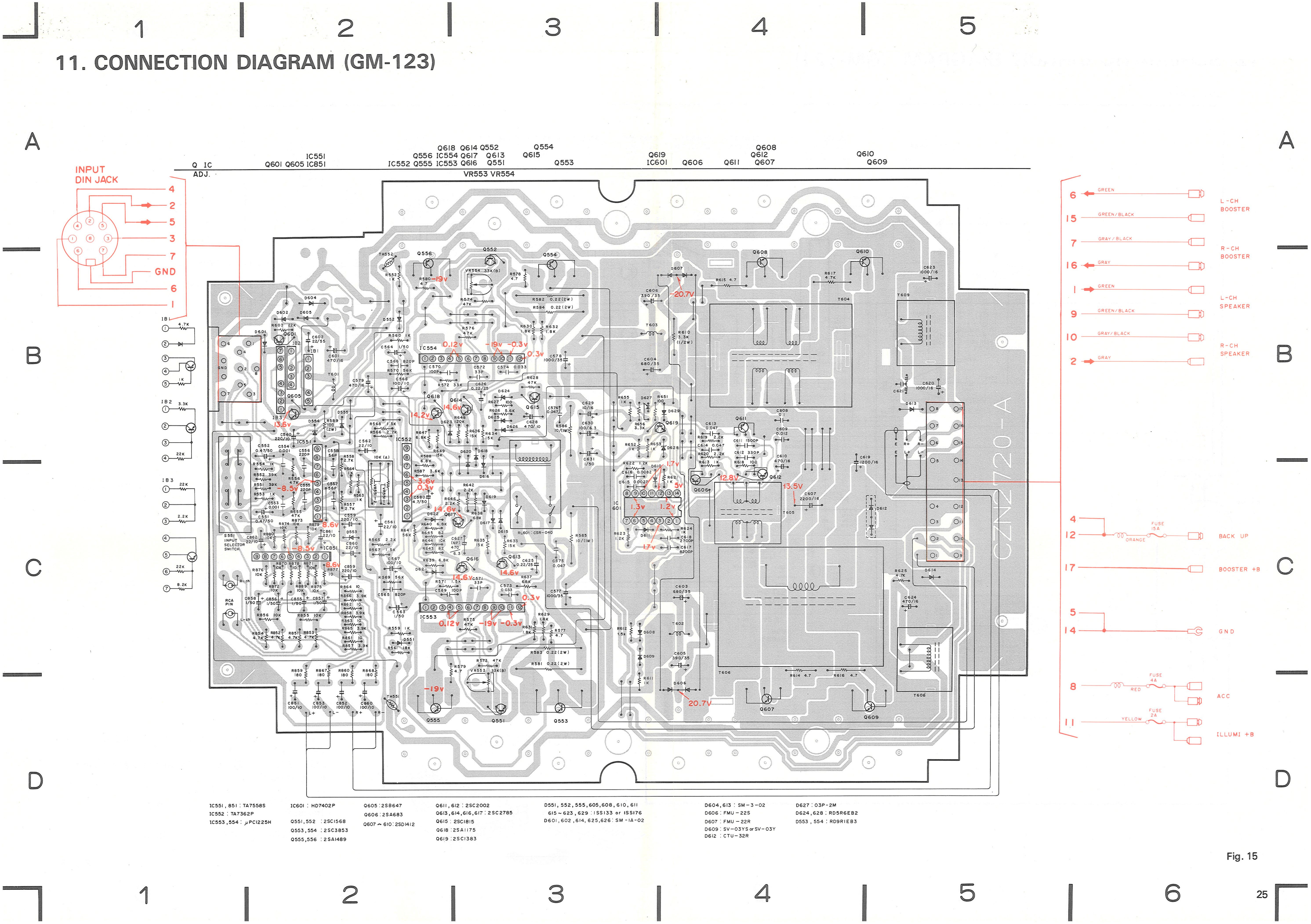
Switch

- **AMP UNIT**

S551: INPUT SELECTOR SWITCH ..... LINE IN, BOOSTER—COMPONENT
The underlined indicates the switch position.

Fig. 14

11. CONNECTION DIAGRAM (GM-123)


1
2
3
4
5
6
A
B
C
D
Q IC
ADJ.
Q601 Q605 IC551 IC851
IC552 Q555 Q556 IC553 IC554 Q616 Q617 Q618 Q614 Q551 Q613 Q552
Q615 Q554
Q553
VR553 VR554
IC601 Q619
Q606
Q611
Q607 Q612 Q608
Q609 Q610
INPUT
DIN JACK
GND
S551 INPUT SELECTOR SWITCH
RCA PIN
R-ch
L-ch
CZN2720-A
6 GREEN
15 GREEN/BLACK
L-CH BOOSTER
7 GRAY/BLACK
16 GRAY
R-CH BOOSTER
1 GREEN
9 GREEN/BLACK
L-CH SPEAKER
10 GRAY/BLACK
2 GRAY
R-CH SPEAKER
4
12
ORANGE
FUSE 15A
BACK UP
17
BOOSTER +B
5
14
GND
8
RED
FUSE 4A
ACC
11
YELLOW
FUSE 2A
ILLUMI +B

IC551, 851 : TA7558S
IC552 : TA7362P
IC553, 554 : μPC1225H

IC601 : HD7402P

Q551, 552 : 2SC1568
Q553, 554 : 2SC3853
Q555, 556 : 2SA1489

Q605 : 2SB647
Q606 : 2SA683
Q607 ~ 610 : 2SD1412

Q611, 612 : 2SC2002
Q613, 614, 616, 617 : 2SC2785
Q615 : 2SC1815
Q618 : 2SA1175
Q619 : 2SC1383

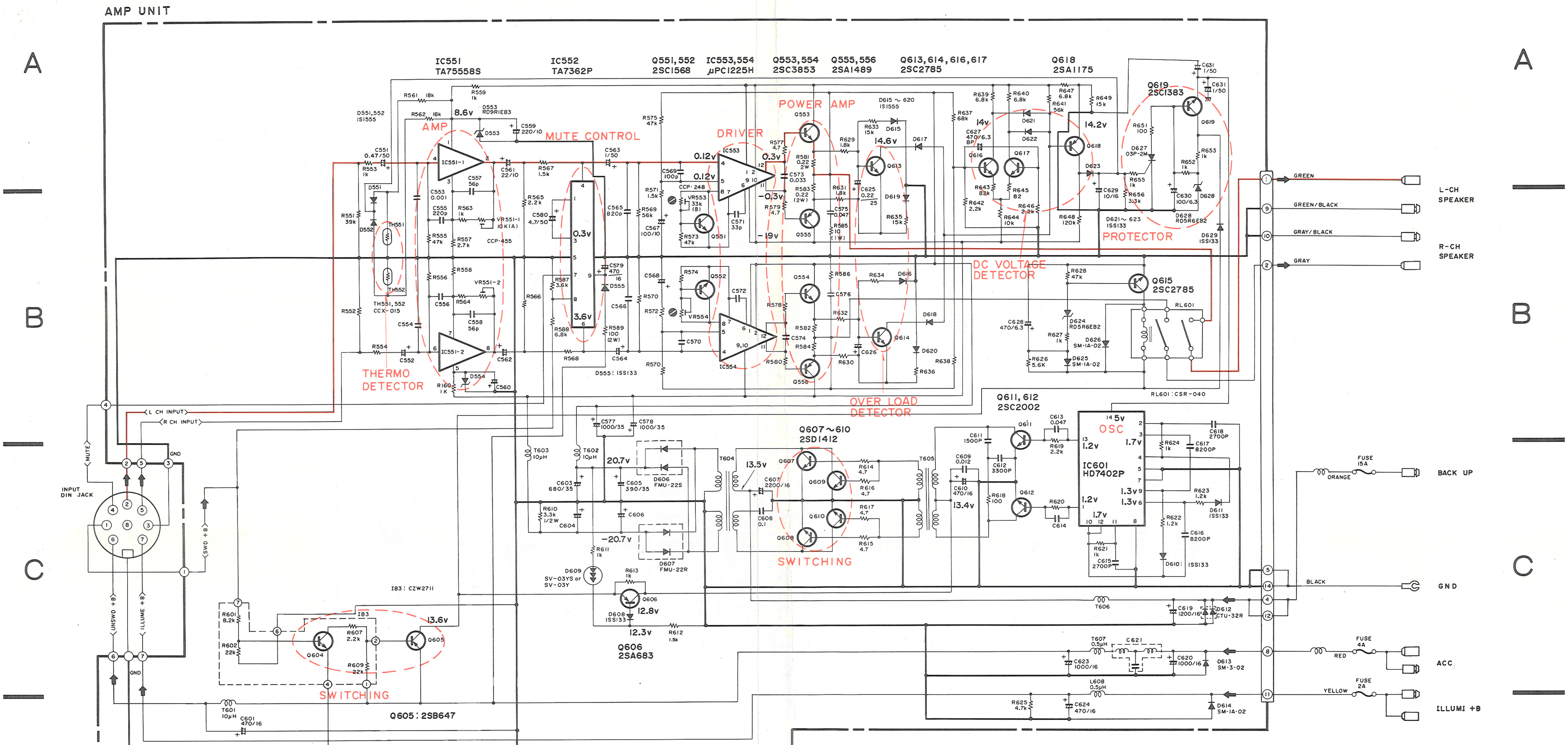
D551, 552, 555, 605, 608, 610, 611
615 ~ 623, 629 : 1SS133 or 1SS176
D601, 602, 614, 625, 626 : SM-1A-02

D604, 613 : SM-3-02
D606 : FMU-22S
D607 : FMU-22R
D609 : SV-03YS or SV-03Y
D612 : CTU-32R

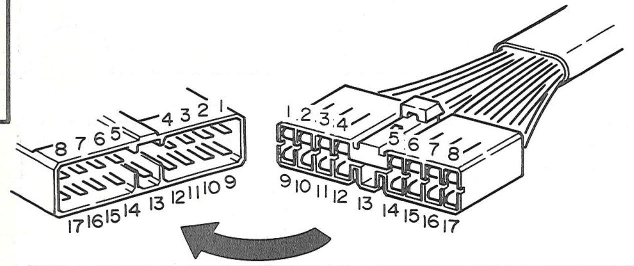
D627 : 03P-2M
D624, 628 : RD5R6EB2
D553, 554 : RD9R1EB3

Fig. 15

12. SCHEMATIC CIRCUIT DIAGRAM (GM-121)


AMP UNIT
IC551 TA75558S
IC552 TA7362P
Q551,552 2SC1568
IC553,554 μPC1225H
Q553,554 2SC3853
Q555,556 2SA1489
Q613,614,616,617 2SC2785
Q618 2SA1175
Q619 2SC1383
AMP
MUTE CONTROL
DRIVER
POWER AMP
PROTECTOR
DC VOLTAGE DETECTOR
THERMO DETECTOR
OVER LOAD DETECTOR
Q615 2SC2785
RL601
RL601 : CSR-040
Q611, 612 2SC2002
OSC
IC601 HD7402P
Q607~610 2SD1412
SWITCHING
Q606 2SA683
Q605 : 2SB647
IB3 : CZW27II
L CH INPUT
R CH INPUT
INPUT DIN JACK
MUTE
GND
SWD +B
UNSWD +B
ILLUME +B
GREEN
GREEN/BLACK
GRAY/BLACK
GRAY
L-CH SPEAKER
R-CH SPEAKER
FUSE 15A
ORANGE
BACK UP
BLACK
GND
FUSE 4A
RED
ACC
FUSE 2A
YELLOW
ILLUMI +B
TH551, 552 CCX-015
D555 : ISS133
D610 : ISS133
D621~623 ISS133
8.6v
0.12v
0.3v
-0.3v
-19v
3.6v
14.6v
14v
14.2v
20.7v
-20.7v
13.5v
13.4v
13.6v
12.8v
12.3v
5v
1.2v
1.7v
1.3v

17P CONNECTOR

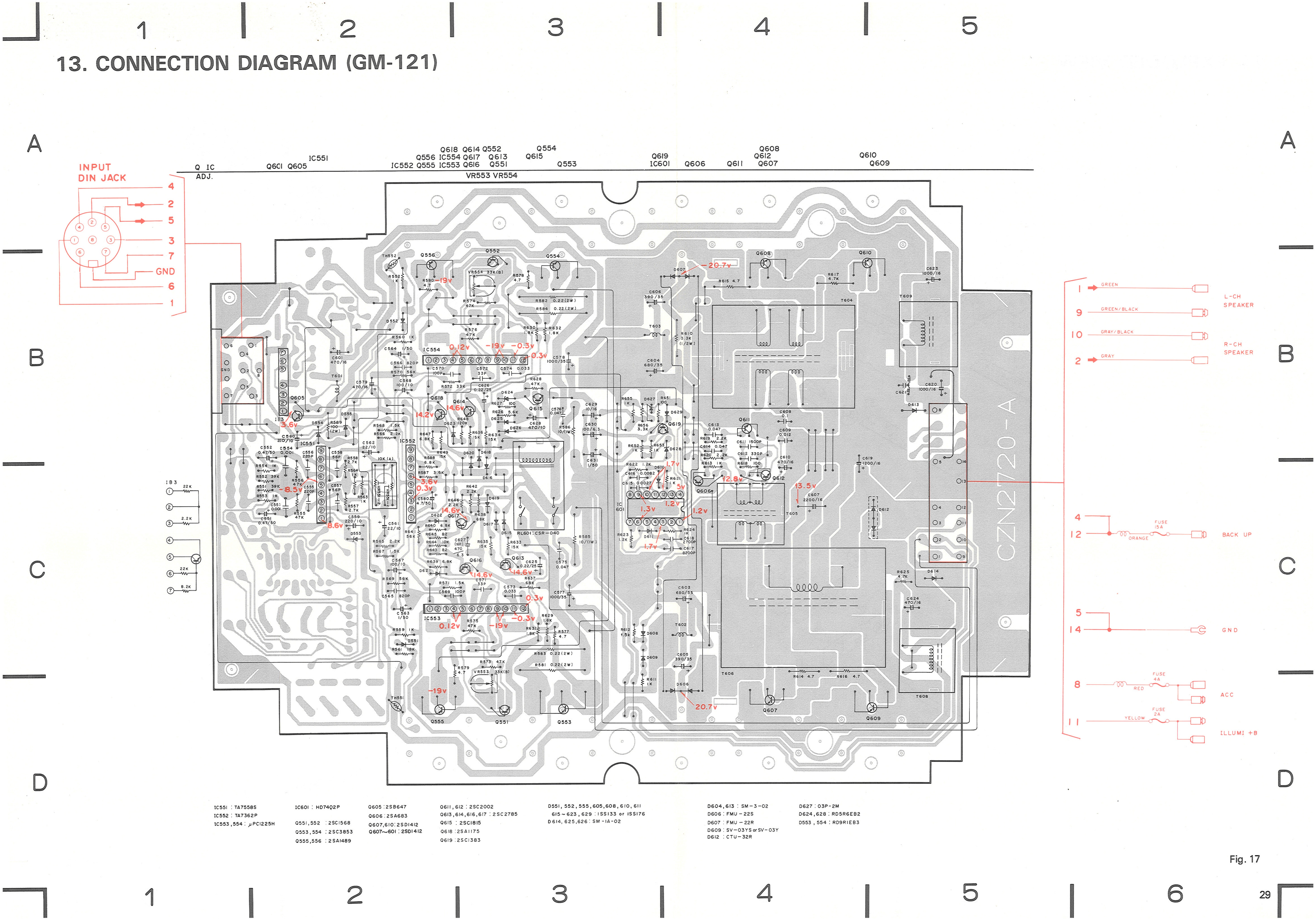

8 7 6 5
4 3 2 1
17 16 15 14 13 12 11 10 9
1 2 3 4
5 6 7 8
9 10 11 12 13 14 15 16 17

* Be sure to use Q553 554, 555 and 556 in the same rank when servicing.
Q553—556 and R573 and 574 used mutually in the following assembly.

Rank Resistor	S,T	Q,R
R573, 574	47 K	27 K

Fig. 16

13. CONNECTION DIAGRAM (GM-121)


1
2
3
4
5
6
A
B
C
D
INPUT
DIN JACK
GND
Q IC
ADJ.
Q6C1 Q605
IC551
Q618 Q614 Q552
Q556 IC554 Q617 Q613
IC552 Q555 IC553 Q616 Q551
Q554
Q615
Q553
VR553 VR554
Q619
IC601
Q606
Q611
Q608
Q612
Q607
Q610
Q609
-20.7v
-19v
0.12v
-19v
-0.3v
0.3v
14.6v
14.2v
3.6v
-8.5v
8.6v
3.6v
0.3v
14.6v
14.6v
14.6v
0.3v
0.12v
-19v
-0.3v
-19v
1.7v
5v
12.8v
1.3v
1.2v
1.2v
1.7v
13.5v
20.7v
CZN2720-A
GREEN
GREEN/BLACK
GRAY/BLACK
GRAY
L-CH
SPEAKER
R-CH
SPEAKER
FUSE
15A
ORANGE
BACK UP
GND
FUSE
4A
RED
ACC
FUSE
2A
YELLOW
ILLUMI +B
9
10
12
14
8
11

IC551 : TA7558S
IC552 : TA7362P
IC553,554 : μPC1225H

IC601 : HD74Q2P

Q551,552 : 2SC1568
Q553,554 : 2SC3853
Q555,556 : 2SA1489

Q605 : 2SB647
Q606 : 2SA683
Q607,610 : 2SD1412
Q607~601 : 2SD1412

Q611,612 : 2SC2002
Q613,614,616,617 : 2SC2785
Q615 : 2SC1815
Q618 : 2SA1175
Q619 : 2SC1383

D551,552,555,605,608,610,611
615~623,629 : 1SS133 or 1SS176
D614,625,626 : SM-1A-02

D604,613 : SM-3-02
D606 : FMU-22S
D607 : FMU-22R
D609 : SV-03YS or SV-03Y
D612 : CTU-32R

D627 : 03P-2M
D624,628 : RD5R6EB2
D553,554 : RD9R1EB3

Fig. 17

14. EXPLODED VIEW

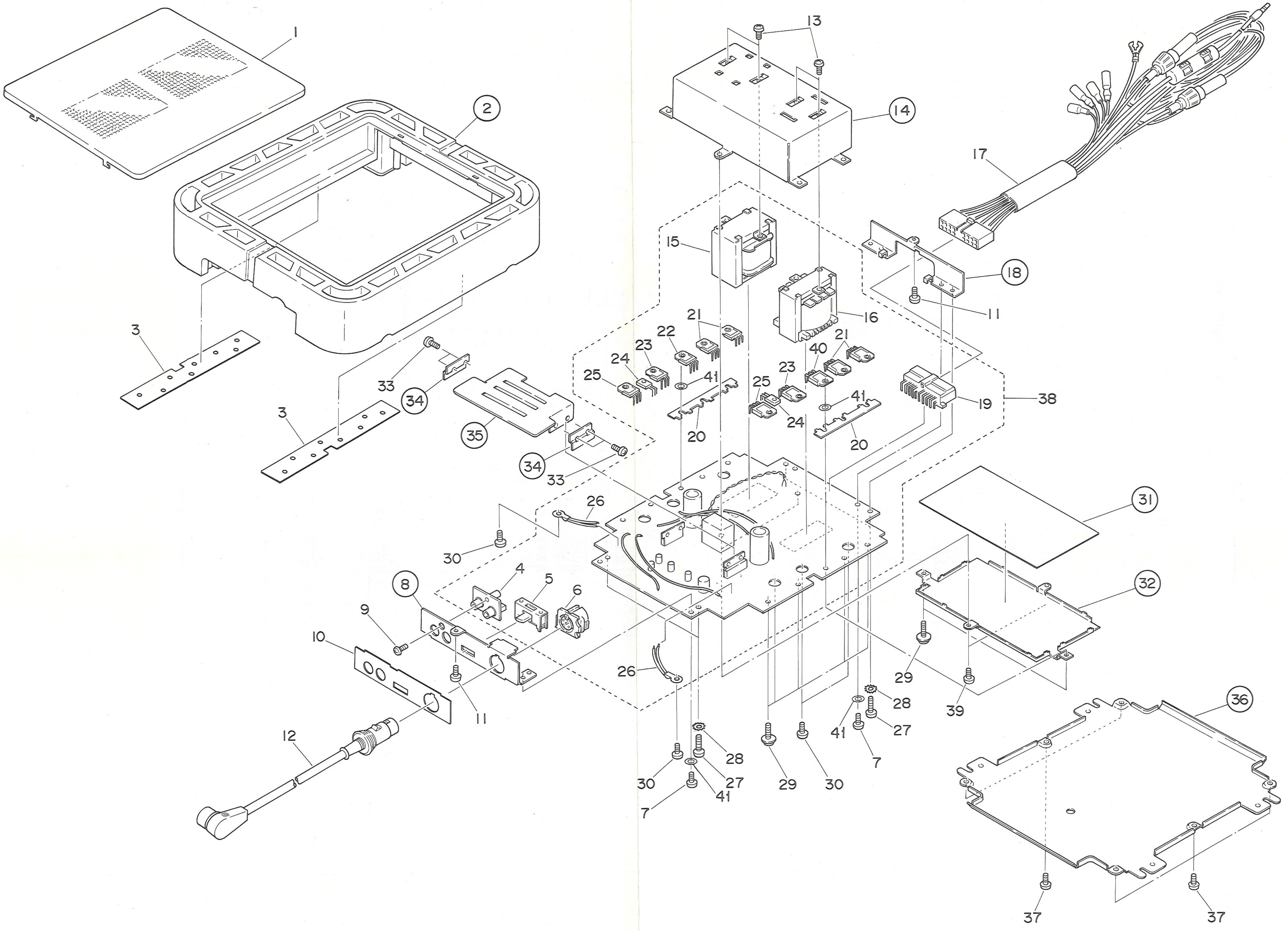

1
2
3
3
13
14
17
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Fig. 18

• Parts List

NOTE:

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *Parts marked by "◉" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Mark	No.	Part No.	Description
	1.	CZN2718	Case (GM-203)
		CZN2704	Case (GM-201)
		CZN2717	Case (GM-123)
		CZN2703	Case (GM-121)
	2.		Heat Sink (GM-203, GM-201)
			Heat Sink (GM-123, GM-121)
	3.	CZN2712	Rubber
	4.	CKB-013	Pin Jack (2P) (GM-203, GM-123)
	5.	HSH-119	Switch (INPUT SELECTOR) (GM-203, GM-123)
	6.	CKS-549	DIN JACK
	7.	CBA-124	Screw
	8.		Bracket
	9.	CBZ30P050FMC	Screw
	10.	CZN2716	Panel (GM-203, GM-123)
		CZN2715	Panel (GM-201, GM-121)
	11.	BBZ30P080FZK	Screw
	12.	CZD2708	DIN Cord (GM-201)
		CZD2707	DIN Cord (GM-121)
	13.	BMZ30P050FZK	Screw
	14.		Shield Case (GM-203, GM-201)
			Shield Case (GM-123, GM-121)
	15.	CZT2704	Coil (GM-203, GM-201)
		CZT2703	Coil (GM-123, GM-121)
	16.	CZT2702	Transformer (GM-203, GM-201)
		CZT2701	Transformer (GM-123, GM-121)
	17.	CZD2706	Cord (GM-203)
		CZD2705	Cord (GM-201)
		CZD2703	Cord (GM-123)
		CZD2702	Cord (GM-121)
	18.		Bracket
	19.	CKS-548	Connector
	20.	CZN2714	Spacer (GM-123, GM-121)
★★	21.	2SC3300	Transistor (GM-203, GM-201)
★★		2SD1412	Transistor (GM-123, GM-121)
★	22.	CTU-32S	Diode (GM-203, GM-201)
★		FMU-22S	Diode (GM-123, GM-121)
★★	23.	2SD718	Transistor (GM-203, GM-201)
★★		2SC3853	Transistor (GM-123, GM-121)
★★	24.	2SC1568	Transistor
★★	25.	2SB688	Transistor (GM-203, GM-201)
★★		2SA1489	Transistor (GM-123, GM-121)
★	26.	CCX-015	Posistor
	27.	BBZ30P080FMC	Screw
	28.	WH30FUC	Washer
	29.	AMZ30P120FMC	Screw
	30.	BBZ30P080FMC	Screw
	31.		Insulator (GM-201, GM-121)
	32.		Shield Case (GM-201, GM-121)
	33.	BMZ30P050FMC	
	34.		Holder
	35.		Heat Sink
	36.		Case
	37.	BBZ30P080FMC	Screw
◉	38.	CZW2706	Amp Unit (GM-203)
◉		CZW2705	Amp Unit (GM-201)
◉		CZW2703	Amp Unit (GM-123)
◉		CZW2702	Amp Unit (GM-121)
	39.	BMZ30P050FMC	Screw
★	40.	CTU-32R	Diode (GM-203, GM-201)
★		FMU-22R	Diode (GM-123, GM-121)
	41.	WB30FMC	Washer

15. ELECTRICAL PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10^1 561 .... RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J
47kΩ 47 × 10^3 473 .... RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5Ω 0R5 .... RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1Ω 010 .... RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10^1................... RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.*
  ★ ★: GENERALLY MOVES FASTER THAN ★.
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts whose parts numbers are omitted are subject to being not supplied.*

Amp Unit (GM-203)

MISCELLANEOUS

Mark	Symbol & Description		Part No.
★★	IC551, 851		TA75558S
★★	IC552		TA7362P
★★	IC553, 554		μPC1225H
★★	IC601		HD7402P
★★	Q551, 552		2SC1568
★★	Q553, 554		2SD718
★★	Q555, 556		2SB688
★★	Q605		2SB647
★★	Q606		2SA683
★★	Q607—610		2SC3300
★★	Q611, 612		2SC2002
★★	Q613, 614, 616, 617		2SC2785
★★	Q618		2SA1175
★★	Q615		2SC1815
★★	Q619		2SC1383
★	D551, 552, 555, 605, 608, 610, 611, 615—623, 629		1SS133 or 1SS176
★	D553, 554		RD9R1EB2
★	D601, 602, 614, 625, 626		SM-1A-02 or ERA15-02
★	D604		SM-3-02
★	D606		CTU-32S
★	D607		CTU-32R
★	D609	Varistor Diode	SV-03Y or SV-03YS
★	D612		CTU-32R
★	D624, 628		RD5R6EB3
★	D627	Thyristor	03P-2M
★	TH551, 552	Posistor	CCX-015
	T601—603	Coil	CZT2705
	T604	Transformer	CZT2702
	T605	Transformer	CTH-061
	T606	Coil	CZT2704
	T607, 608	Coil	CTF-002
★★	VR551	Semi-fixed, 10 kΩ (B)	CCP-455
★★	VR553, 554	Semi-fixed, 33 kΩ (B)	CCP-248
	RL601	Relay	CSR-040
★★	S551	Switch (INPUT SELECTOR SWITCH)	HSH-119
	IB1		CZW2710
	IB2		CWW-195
	IB3		CZW2711

RESISTORS

Mark	Symbol & Description	Part No.
	R581—584, 589	RN2P□□□J
	R585, 586	RN1P□□□J
	R610	RD1/2PS□□□J
	Other Resistors	RD1/4PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C551, 552	CEAR47M50L2
	C553, 554	CKDYB102K50
	C555, 556	CKDYB221K50
	C557, 558	CKDYB560K50
	C559, 560	CEA221M10L2
	C561, 562	CEA220M16L2
	C563, 564, 631, 855–858	CEA010M50L2
	C565, 566	CKDYB821K50
	C567, 568	CEA101M50L2
	C569, 570	CKDYB101K50
	C571, 572	CKDYB330K50
	C573, 574	CQMA333K50
	C575, 576, 613, 614	CQMA473K50
	C577, 578	CEA102M35L2
	C579, 601, 610, 624	CEA471M16L2
	C580	CEA4R7M50L2
	C602	CEA220M35L2
	C603, 604 1000 µF/35 V	CZC2702
	C605, 606 470 µF/35 V	CZC2704
	C607 2200 µF/16 V	CZC2705
	C608	CQMA104K50
	C609	CQMA123K50
	C611	CQMA152K50
	C612	CQMA332K50
	C615, 618	CQMA272K50
	C616, 617	CQMA822K50
	C619 1200 µF/16 V	CZC2706
	C620, 623	CEA102M16L2
	C621	CCG-105
	C624 470 µF/16 V	CZC2707
	C625, 626	CSZAR22M35
	C627	CEA471M6R3NP
	C628	CEA471M10L2
	C629	CEA100M16L2
	C630, 851–854	CEA101M10L2
	C859, 860	CEA221M16L2
	C861, 862	CEA220M10L2

* Be sure to use Q553, 554 555 and 556 in the same rank when servcing.
Q553–556 and R573 and 574 used mutually in the following assembly.

Rank / Resistor	S,T	Q,R
R573, 574	47 K	27 K

Amp Unit (GM-201)

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC551	TA75558S
★★	IC552	TA7362P
★★	IC553, 554	µPC1225H
★★	IC601	HD7402P
★★	Q551, 552	2SC1568
★★	Q553, 554	2SD718
★★	Q555, 556	2SB688
★★	Q605	2SB647
★★	Q606	2SA683
★★	Q607–610	2SC3300
★★	Q611, 612	2SC2002
★★	Q613, 614, 616, 617	2SC2785
★★	Q615	2SC1815
★★	Q618	2SA1175
★★	Q619	2SC1383
★	D551, 552, 555, 608, 610, 611, 615–623, 629	1SS133 or 1SS176
★	D553, 554	RD9R1EB2
★	D604	SM-3-02
★	D606	CTU-32S
★	D607	CTU-32R
★	D609 Varistor Diode	SV-03Y or SV-03YS
★	D612	CTU-32R
★	D613	SM-3-02
★	D614, 625, 626	SM-1A-02 or ERA15-02
★	D624, 628	RD5R6EB3
★	D627 Thyristor	03P-2M
★	TH551, 552 Posistor	CCX-015
	T601–603 Coil	CZT2705
	T604 Transformer	CZT2702
	T605 Transformer	CTH-061
	T606 Coil	CZT2704
	T607, 608 Coil	CTF-002
★★	VR551 Semi-fixed, 10 kΩ (B)	CCP-455
★★	VR553, 554 Semi-fixed, 33 kΩ (B)	CCP-248
	RL601 Relay	CSR-040
	IB3	CZW2711

RESISTORS

Mark	Symbol & Description	Part No.
	R581–584, 589	RN2P□□□J
	R585, 586	RN1P□□□J
	R610	RD1/2PS□□□J
	Other Resistors	RD1/4PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C551, 552	CEAR47M50L2
	C553, 554	CKDYB102K50
	C555, 556	CKDYB221K50
	C557, 558	CKDYB560K50
	C559, 560	CEA221M10L2
	C561, 562	CEA220M16L2
	C563, 564, 631	CEA010M50L2
	C565, 566	CKDYB821K50
	C567, 568	CEA101M10L2
	C569, 570	CKDYB101K50
	C571, 572	CKDYB330K50
	C573, 574	CQMA333K50
	C575, 576, 613, 614	CQMA473K50
	C577, 578	CEA102M35L2
	C579, 601, 610, 624	CEA471M16L2
	C580	CEA4R7M50L2
	C603, 604 1000 µF/35 V	CZC2702
	C605, 606 470 µF/35 V	CZC2704
	C607 2200 µF/16 V	CZC2705
	C608	CQMA104K50
	C609	CQMA123K50
	C611	CQMA152K50
	C612	CQMA332K50
	C615, 618	CQMA272K50
	C616, 617	CQMA822K50
	C619 1200 µF/16 V	CZC2706
	C620, 623	CEA102M16L2
	C621	CCG-105
	C624 470 µF/16 V	CZC2707
	C625, 626	CSZAR22M35
	C627	CEA471M6R3NP
	C628	CEA471M10L2
	C629	CEA100M16L2
	C630	CEA101M10L2

* Be sure to use Q553, 554, 555 and 556 in the same rank when servicing.
Q553–556 and R573 and 574 used mutually in the following assembly.

Rank Resistor	S,T	Q,R
R573, 574	47 K	27 K

Amp Unit (GM-123)

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC551, 851	TA75558S
★★	IC552	TA7362P
★★	IC553, 554	µPC1225H
★★	IC601	HD7402
★★	Q551, 552	2SC1568
★★	Q553, 554	2SC3853
★★	Q555, 556	2SA1489
★★	Q605	2SB647
★★	Q607–610	2SD1412
★★	Q661, 612	2SC2002
★★	Q613, 614, 616, 617	2SC2785
★★	Q618	2SA1175
★★	Q615	2SC1815
★★	Q619	2SC1383
★	D551, 552, 555, 605, 608, 610, 611, 615–623, 629	1SS133 or 1SS176
★	D553, 554	RD9R1EB2
★	D601, 602, 614, 625, 629	SM-1A-02 or ERA15-02
★	D604	SM-3-02
★	D606	FMU-22S
★	D607	FMU-22R
★	D609 Varistor Diode	SV-03Y or SV-03YS
★	D612	CTU-22R
★	D624, 628	RD5R6EB3
★	D627 Thyristor	03P-2M
★	TH551, 552 Posistor	CCX-015
	T601–603 Coil	CZT2705
	T604 Transformer	CZT2701
	T605 Transformer	CTH-061
	T606 Coil	CZT2703
	T607, 608 Coil	CTF-002
★★	VR551 Semi-fixed, 10 kΩ (B)	CCP-455
★★	VR553, 554 Semi-fixed, 33 kΩ (B)	CCP-248
	RL601 Relay	CSR-040
★★	S551 Switch (INPUT SELECTOR SWITCH)	HSH-119
	IB1	CZW2710
	IB2	CWW-195
	IB3	CZW2711

RESISTORS

Mark	Symbol & Description	Part No.
	R581–584, 589	RN2P□□□J
	R585, 586	RN1P□□□J
	R610	RD1/2PS□□□J
	Other Resistors	RD1/4PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C551, 552	CEAR47M50L2
	C553, 554	CKDYB221K50
	C555, 556	CKDYB560K50
	C557, 558	CKDYB560K50
	C559, 560, C859, 860	CEA221M10L2
	C561, 562	CEA220M16L2
	C563, 564, 631, 855–858	CEA010M50L2
	C565, 566	CKDYB821K50
	C567, 568	CEA101M50L2
	C569, 570	CKDYB101K50
	C571, 572	CKDYB330K50
	C573, 574	CQMA333K50
	C575, 576, 613, 614	CQMA473K50
	C577, 578	CEA102M35L2
	C579, 601, 610, 624	CEA471M16L2
	C580	CEA4R7M50L2
	C602, 603, 604, 680	CEA220M35L2
	μF/35 V	CZC2701
	C605, 606 390 μF/35 V	CZC2703
	C607 2200 μF/16 V	CZC2705
	C608	CQMA104K50
	C609	CQMA123K50
	C611	CQMA152K50
	C612	CQMA332K50
	C615, 618	CQMA272K50
	C616, 617	CQMA822K50
	C619 1200 μF/16 V	CZC2706
	C620, 623	CEA102M16L2
	C621	CCG-105
	C624 470 μF/16 V	CZC2707
	C625, 626	CSZAR22M35
	C627	CEA471M6R3NP
	C628	CEA471M10L2
	C629	CEA100M16L2
	C630, 851–854	CEA101M10L2
	C861, 862	CEA220M10L2

* Be sure to use Q553, 554, 555 and 556 in the same rank when servicing.
Q553–556 and R573 and 574 used mutually in the following assembly.

Rank / Resistor	S,T	Q,R
R573, 574	47 K	27 K

Amp Unit (GM-121)

MISCELLANEOUS

Mark	Symbol & Description	Part No.
★★	IC551	TA75558S
★★	IC552	TA7362P
★★	IC553, 554	μPC1225H
★★	IC601	HD7402P
★★	Q551, 552	2SC1568
★★	Q553, 554	2SC3853
★★	Q555, 556	2SA1489
★★	Q605	2SB647
★★	Q606	2SA683
★★	Q607–610	2SD1412
★★	Q611, 612	2SC2002
★★	Q613, 614, 616, 617	2SC2785
★★	Q615	2SC1815
★★	Q618	2SA1175
★★	Q619	2SC1383
★	D551, 552, 555, 608, 611, 615–623, 629	1SS133 or 1SS176
★	D553, 554	RD9R1EB2
★	D604	SM-3-02
★	D606	FMU-22S
★	D607	FMU-22R
★	609 Varistor Doide	SV-03Y or SV-03YS
★	D612	CTU-32R
★	D614, 625, 626	SM-1A-02 or ERA15-02
★	D624, 628	RD5R6EB3
★	D627 Thyristor	03P-2M
★	TH551, 552 Posistor	CCX-015
	T601–603 Coil	CZT2705
	T604 Transformer	CZT2701
	T605 Transformer	CTH-061
	T606 Coil	CZT2703
	T607, 608 Coil	CTF-002
★★	VR551, Semi-fixed, 10 kΩ(B)	CCP-455
★★	VR553, 554 Semi-fixed, 33 kΩ(B)	CCP-248
	RL601 Relay	CSR-040
	IB3	CZW2711

RESISTORS

Mark	Symbol & Description	Part No.
	R581–584, 589	RN2P□□□J
	R585, 586	RN1P□□□J
	R610	RD1/2PS□□□J
	Other Resistors	RD1/4PS□□□JL

CAPACITORS

Mark	Symbol & Description	Part No.
	C551, 552	CEAR47M50L2
	C553, 554	CKDYB102K50
	C555, 556	CKDYB221K50
	C557, 558	CKDYB560K50
	C559, 560	CEA221M10L2
	C561, 562	CEA220M16L2
	C563, 564, 631	CEA010M50L2
	C565, 566	CKDYB821K50
	C567, 568	CEA101M10L2
	C569, 570	CKDYB101K50
	C571, 572	CKDYB330K50
	C573, 574	CQMA333K50
	C575, 576, 613, 614	CQMA473K50
	C577, 578	CEA102M35L2
	C579, 601, 610, 624	CEA471M16L2
	C580	CEA4R7M50L2
	C603, 604 680µF/35 V	CZC2701
	C605, 606 390µF/35 V	CZC2703
	C607 2200µF/16 V	CZC2705
	C608	CQMA104K50
	C609	CQMA123K50
	C611	CQMA152K50
	C612	CQMA332K50
	C615, 618	CQMA272K50
	C616, 617	CQMA822K50
	C619 1200µF/16 V	CZC2706
	C620, 623	CEA102M16L2
	C621	CCG-105
	C624 470µF/16 V	CZC2707
	C625, 626	CSZAR22M35
	C627	CEA471M6R3NP
	C628	CEA471M10L2
	C629	CEA100M16L2
	C630	CEA101M10L2

* Be sure to use Q553, 554 555 and 556 in the same rank when servicing.
Q553—556 and R573 and 574 used mutually in the following assembly.

Rank Resistor	S,T	Q,R
R573, 574	47 K	27 K

16. PACKING METHOD

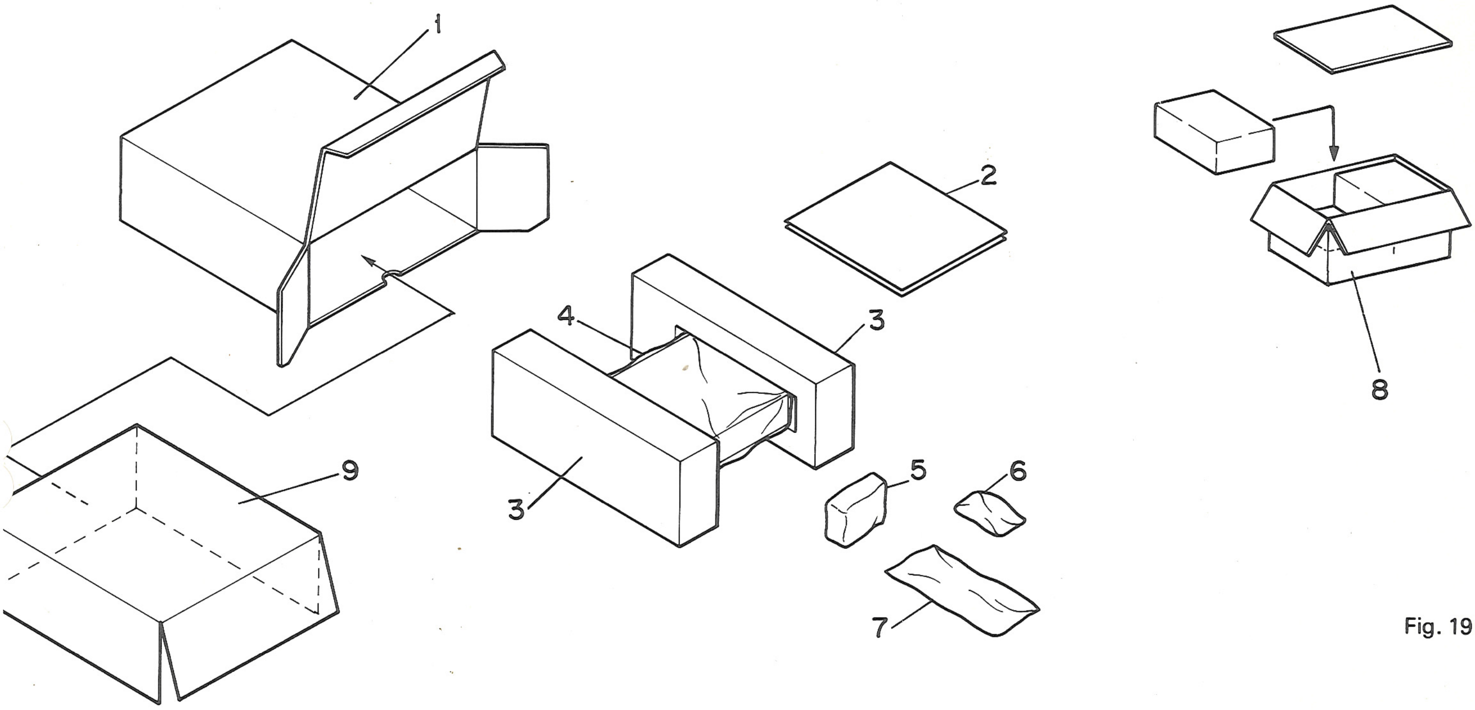

Fig. 19

• Parts List

Mark	No.	Part No.	Description
	1.	CZN2714	Carton (GM-203/US)
		CZH2713	Carton (GM-201/EW)
		CZH2710	Carton (GM-123/US)
		CZH2709	Carton (GM-123/CA)
		CZH2711	Carton (GM-123/ES)
		CZH2708	Carton (GM-121/EW)
	2.	CZR2707	Owner's Manual (GM-203/US)
		CZR2706	Owner's Manual (GM-201/EW)
		CZR2703	Owner's Manual (GM-123/US, CA)
		CZR2704	Owner's Manual (GM-123/CA)
		CZR2705	Owner's Manual (GM-123/ES)
		CZR2702	Owner's Manual (GM-121/EW)
	3.	CZH2717	Styrofoam (GM-203/US, GM-201/EW)
		CZH2716	Styrofoam (GM-121/US, CA, ES, GM-121/EW)
	4.	CZH2718	Cover
	5.	CZE2701	Accessory Kit
	5-1.	PNZ50P160FMC	Screw
	5-2.	WB45FMC	Washer
	5-3.		Pin
	6.	CZD2707	DIN Cord (GM-121/EW)
	7.	CZD2710	Cord Assy (GM-203/US)
		CZD2711	Cord Assy (GM-201/EW)
		CZD2703	Cord (GM-123/US, CA, ES)
		CZD2702	Cord (GM-121/EW)
	7-1.	CZD2706	Cord (GM-203/US)
		CZD2705	Cord (GM-201/EW)
	7-2.	CZD2708	DIN Cord (GM-201/EW)
	7-3.	CZD2712	Cord (GM-203/US, GM-201/EW)
	7-4.	CDF-987	Cord (GM-203/US)
	7-5.	CDF-988	Cord (GM-203/US)
	7-6.	CDK-007	Cord (GM-203/US)
	8.	CZH2706	Contain Box (GM-203/US)
		CZH2703	Contain Box (GM-123/US)
	9.	CHW1020	Reinforcement Paper (GM-203, GM-201)
		CHW1019	Reinforcement Paper (GM-123, GM-121)